FOOD INDUSTRIES

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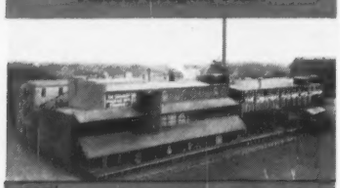

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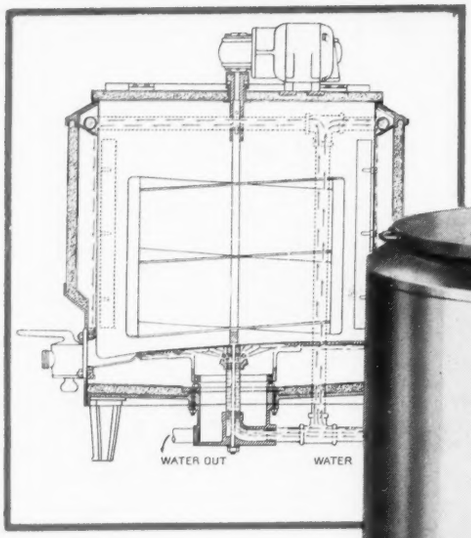

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FOOD INDUSTRIES

PRODUCTION • ENGINEERING • DISTRIBUTION

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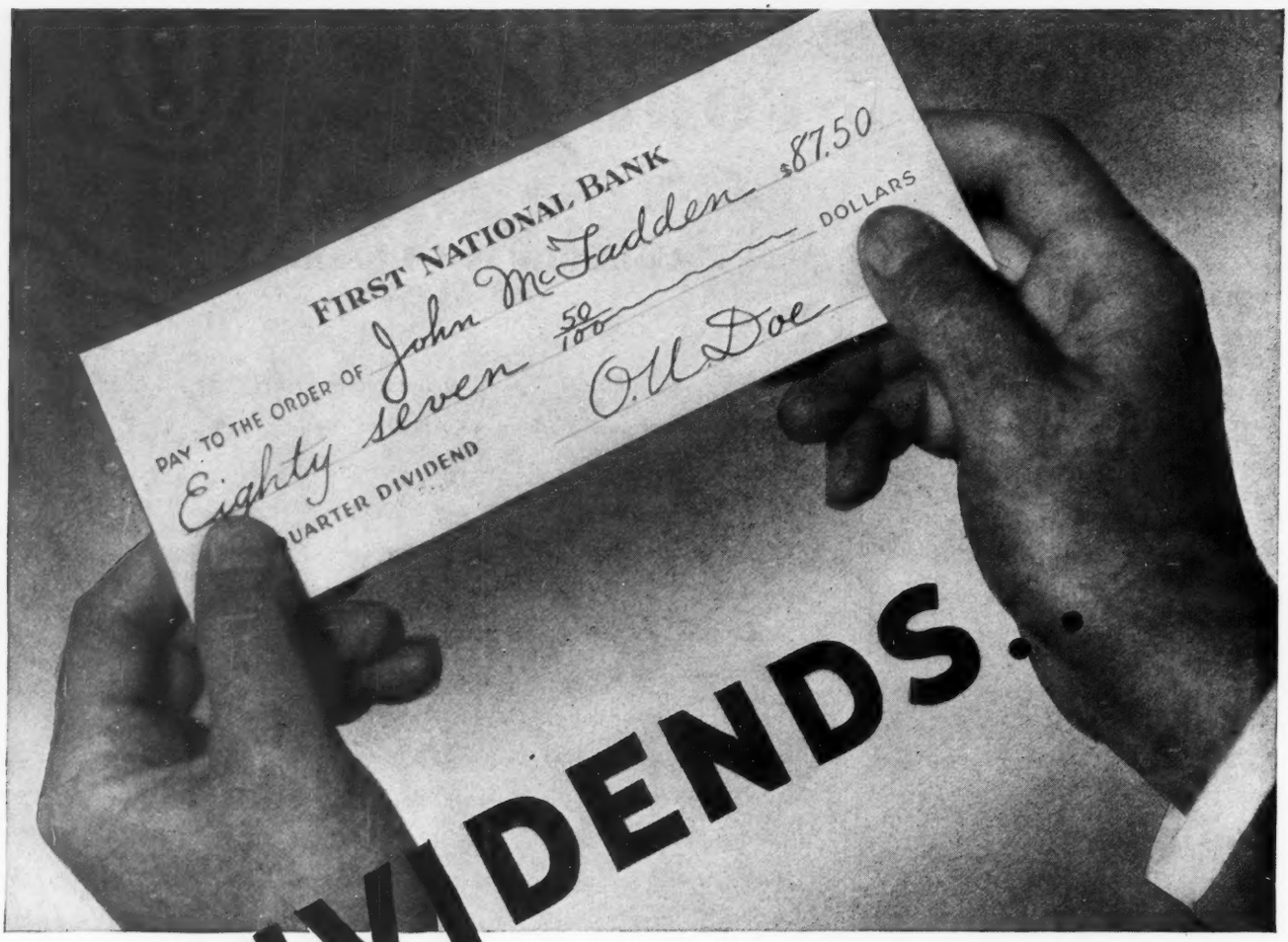

DIVIDENDS...

EARNED BY A NEW PACKAGE

HOW many dividend checks are earned because of the sales—and profits—made by an attractive package? The product may be of the finest on the market—the advertising and merchandising up to today's competition—but the package must "measure-up" or sales go elsewhere. The final sale is made over-the-counter to a buyer who must have confidence in the package. No matter your product, Heekin Lithographed Metal Containers—properly designed with strong lasting colors, may help build greater dividends. We will gladly work with you. The Heekin Can Company, Cincinnati, Ohio.

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FOOD INDUSTRIES

PRODUCTION • ENGINEERING • DISTRIBUTION

Established 1928—McGraw-Hill Publishing Company, Inc.

Vol. 8, No. 1

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Laurence V. Burton, Editor

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JANUARY 1936

THE TALK OF THE INDUSTRY

AIR CONDITIONING NOTE: The ultimate in ideal working conditions, it is said, will be attained in the new windowless air conditioned office building of the Hershey Choco-

late Co. It is to be complete even down to the signal lights.

Farsighted Hershey management has anticipated everything, even the fact that most folks peek out of the window before going home in order to decide whether to take along the old tattered office umbrella or leave it in the locker. But where there are no windows, how can one look out to learn "whether it snows or whether it blows"?

That problem, we are informed, is to be solved by signal lights which will shine adjacent to the office clock where the glances of all can be safely predicted to focus along about quitting time.

We trust that the switches controlling the signal lights will be kept under lock and key to forestall any practical joker issuing false reports.

IN Canada, they seem to know more about many things than we of the United States, especially on matters of consumption. The plan of the late Charles Vance Millar of Toronto, who died in 1926, leaving an estate of $1,000,000 to the Toronto mother bearing the most children in the ten years following his death, suggests great possibilities. What easier way to increase consumption than to increase the number of consumers?

NOW that E. F. Hutton has resigned as chairman of the board of General Foods, the best gang—beg your pardon, the best gag-of-the-month flutters futilely into the waste basket. Who would twit an ex-chairman of the board for venturing abroad in this wicked world without his vice-president in charge of public relations?

RUMORS, circulating around Shaker Heights, in Cleveland, last month, reached the ear of a gullible housewife who promptly sent a complete set of brand new heavy aluminum cooking utensils to the ash heap. And what do you suppose was the rumor which prompted that drastic

action? Nothing more than the old bewhiskered cancer hokum.

When Shakespeare said, "Lord, what fools these mortals be!" he passed over several highly appropriate adjectives. If anybody else wants to donate a brand new set of heavy aluminum-ware, please communicate with FOOD INDUSTRIES.

HOUSEHOLD PETS seem to possess a way of distinguishing unpleasant food. Whether it is by sight, smell or taste, one cannot be certain, yet there is something worthy of investigation in the following.

Two cats, one a Persian, and the other an alley cat, invariably refused to eat raw beef from Chain Store A, no matter how hungry they might be. Yet raw beef from Chain Store B

always met their very evident approval. Their places have recently been taken in the same family in the same home by two other cats. Curiously enough, the second pair of cats also refuses to eat raw meat from Chain Store A but continues to relish it from Chain Store B. When the meat is cooked, however, they exhibit no preference.

IF Consumers' Research, Inc., of virtuous memory, ever settles down to the normal business of life this department may be forced to shut up shop and resume its more serious duties. But, how can one concentrate on serious matters when the latest unhappy intelligence from the battle front informs us that a suit has been filed against C.R. asking for $500,000 damages for libel? The Technical, Editorial and Office Assistants Union and five striking employees are evidently out to rule or ruin the niftiest (to borrow a pre-war phrase) little publishing business in the country.

What chagrin must be C.R.'s when, after years of taunting and daring the wicked food manufacturers to sue it

for libel, with never a rise, it is unexpectedly sued by its own employees! Deah, deah.

Resigned

JAMES is no longer to be "our James." No more can we point with pride to the presence of a Roosevelt in the food business. Alas, James Roosevelt has walked out of the National Grain Yeast Corporation, where he was the main squeeze, the big shot, the brass hat—if you follow us. Apparently he has gone back to the insurance business where competition is less strenuous and the family name is a better lever with which to pry loose some business. We confess that we never were able to quite figure out how the name of Roosevelt would endear a baker to a particular kind of yeast.

Payroll Taxes

SOCIAL security problems begin to be significant in operating management of all business after the first of January. Almost every food plant has far more than the minimum of eight employees. Hence almost every food manufacturer will be confronted with these problems directly, and will come definitely under the social security tax requirements. In undertaking the management problems involved, there are three important things to be borne in mind:

1. The effect on manufacturing costs is exactly the same as though wage rates had been raised. Social security benefits are, in effect, a payroll tax which will shortly amount to 5 per cent of payroll, and which is likely to reach 10 per cent by 1940, or soon thereafter.

2. More elaborate records will be required. These must conform with federal and state rules not yet fully announced; and they will have to be auditable to the satisfaction of federal investigators. But there is no need to rush in on the purchase of elaborate accounting and record schemes, which high-pressure printing salesmen are vigorously peddling for the benefit of their employers. The federal officials, themselves appalled by the complexity of their task, are going to establish workable, reasonable accounting and record systems. Fortunately, these are not going to be beyond the capacity of any intelligent manager or bookkeeper.

3. The new tax will bear most heavily on those commodities in which payroll constitutes the largest percentage of gross sales realization. This is an inevitable consequence of the fact that the new tax is based on the payroll. In view of the intense competition between different foods, all those divisions of industry which are little mechanized and with high payrolls are going to be forced rapidly toward plant modernization and lower cost operations.

Whatever we may think as to the possibilities of readjustment, or elimination under Supreme Court action, the industry might as well begin at once to apply to its cost system the anticipated percentages for social security. The fact that these percentages are small the first year does not justify ignoring them. They are going to grow rapidly, and painfully, for the man who treats their effect too lightly.

Impressions at the Chemical Show

THIS exhibit should be called Process Industries Exposition—there's just as much food machinery as chemical equipment.

Something new by Buffalovak—two-story, two-stage drum dryer. Folks trying to figure out how it works — Richardson, and Toledo Scale showing automatic proportioning weighing machines. Toledo's handles both liquids and free-flowing solids. Getting the right mix every time won't be any trouble now.

Non-food uses for foods—long sought by Farm Chemurgic and U.S.D.A.—are on the way now. Atlas Powder Company showing this succession: dextrose, sorbitol, mannitol, and so on to vitamin C. Fancy—powder company makes raw material for vitamin.

Sharples' new laboratory centrifuge turns up 50,000 r.p.m.—Some speed! They say centrifuges are important in selectively clarifying certain fruit juices. Cloudy juice—poor sales. Clear juice—no vitamins. Must be just right to hold the C.

Lubricated plug cocks by Merco-Nordstrom—in any alloy you want—successfully used in food plants with a special grade of edible grease—New

Hors d'Oeuvres

• Anything can happen, especially in health foods, and we are worried. It has come to our attention that there is in existence a company dealing in "metallurgical" foods. So any day now we expect our grocer to push off on us a body-builder containing iron filings or something.

• *Like riddles? What food product is lacking in palatability, is coarse, untasty and unsightly and has an effect like castor oil? "Health bread," says Raymond Hertwig, of American Medical Association.*

• It surprised us, and it may you, to learn that Americans drink about eight times as much hard liquor as wine. The reason may lie not so much in the fact that we are a nation of two-fisted fire-eaters as that good wine at a reasonable price is an oddity.

• *Food manufacturers have done much to lighten the task of the housewife, but not enough. Dishes still have to be washed. However, bakers have an answer to this. Make the plates of pastry dough and eat them at the end of the meal. Some fun, eh?*

• "Go full speed ahead," says the Soviet dictator in the matter of "hot dog" production. Russians eat 500,000 of these barkers daily, showing that they thrive on Bologna, a fact which many commentators have always held to be true.

• *"Good for one 'popsicle!'" Appearing on a certain percentage of the sticks of popsicles put out by a Kansas City concern, this extra added attraction has been effective in building sales. But the kiddies are gambling!*

• Eggs are to be sold by the pound instead of the dozen in Michigan. Intended to benefit consumers, this ought to aid egg packers by reducing the quoted price on their product. A pound is about two thirds of a dozen, making the listed price much lower.

• *The nation, it is said, has been divided into two classes by high meat prices—the wealthy and vegetarians.*

• Milk passed in a thin film over a vibrating sound diaphragm digests more easily, so said Dr. L. A. Chambers in a paper presented before American Dairy Science Association. If noise and milk mix so advantageously, then these new fangled pneumatic-tired milk wagons may give people indigestion.

Raymond hammer mill for sugar, cocoa, milk—can be cleaned as easy as rolling off a log—Double tablet making machine for candies by F. J. Stokes—Staley uses this for making starch pellets.

Huge exhibit by U. S. Steel—must be going out after the business—Tagliabue using light beams and photo tubes on temperature controllers—Rochester Engineering Co. getting into the food field with huge centrifugals—for pectin extraction—better look into this.

Here's a metal cap that looks and feels like molded plastic—costs a quarter as much—not on the market—And a continuous filter made of parallel cords—And steel barrels lined with corrosion resisting metals—Homogenizers—Lots of new control instruments—Can't get near that Zeiss booth for the crowd.

My feet are tired—let's sit down.

Cheese Makers, Take Warning

MICROANALYTICAL methods developed by the Food and Drug Administration for the detection of what is euphemistically termed "sediment" by the butter industry, are to be applied to the cheese making industry. One of these methods has been published in an earlier issue of FOOD INDUSTRIES.

Those few members of the butter industry who have been unfortunate enough to experience seizures, thereby creating an unsavory situation for all the industry, have certain extenuating circumstances in their favor. These circumstances cannot apply to the cheese makers.

Butter makers have been forced "to take the rap" for farmers for, though manufacturing methods may be as sanitary as the most fastidious would specify, their raw material quality is in the hands of the men who milk the cows. All that a butter maker can do is accept or reject the sour cream. He cannot control, except through the laborious and time-consuming process of education. And routine micro-analysis of every sample of cream purchased is almost prohibitive in volume and cost.

Cheese makers, on the other hand, are buyers of fresh whole milk. Their raw material is presumably in the same state of good quality as market milk. It has not been allowed to sour. And it is utilized promptly.

If the microanalytical test for extraneous matter in cheese unhappily should reveal "sediment," it would appear that the extenuating circumstances of the butter maker will not apply to the cheese maker.

Forewarned is forearmed.

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Mr. and Mrs. Schlink of Consumers' Research Sit Down to Thanksgiving Dinner.

Milk, a Public Utility?

MILK may become a public utility. It will, if some "progressive" influences in Washington are potent enough to accomplish their purposes. Then we shall have the milk man and milk-products industry pestered by all those regulatory restrictions, those handicaps on progress, which now afflict gas, electric, and traction enterprises.

Calamity howlers *vs.* regulators might be a fair title for the battle anticipated in Washington. Unfortunately that battle is going to be far more significant than the one which really has the largest social importance. In the latter particular we refer, of course, to the contest between constantly rising costs and constantly more vigilant technical management.

Politicians and big policy executives may be entrusted with the battle over federal procedure. But the industry can establish its best defense only through most aggressive effort on improved low-cost technology. Anything which will lower the spread between the price paid to farmers for raw milk and the price of bottled milk on Mrs. Jones' kitchen table will defer the day when intimate regulation of the industry will handicap its further progress.

Every factor which will better balance the technology in the application of milk for butter, cheese, ice cream and other milk products, will also be of substantial aid. Everyone, who knows anything about the milk products business, knows that these manufactured products have a great deal to do with the price of fluid milk in the kitchen. The technologist must lend his efforts in this area, if the policy executive is going to have a defensible case to present in Washington.

Outlook for 1936

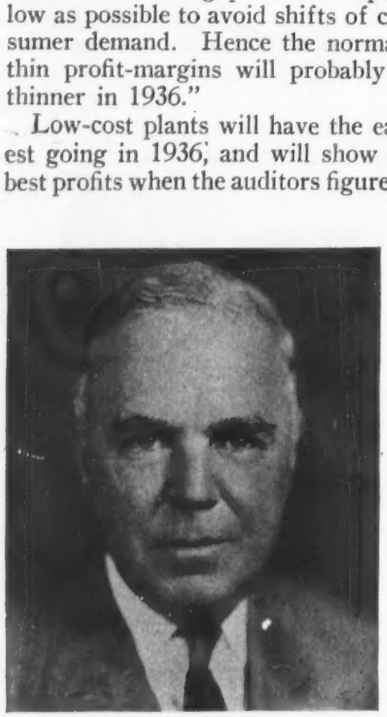
WHY anyone insists anybody else should place on record his prediction for the year to come is beyond us. Why anyone wants to read such New Year statements of things to come is further beyond us. And if anyone should actually believe a published prediction—well, let it be on his own responsibility.

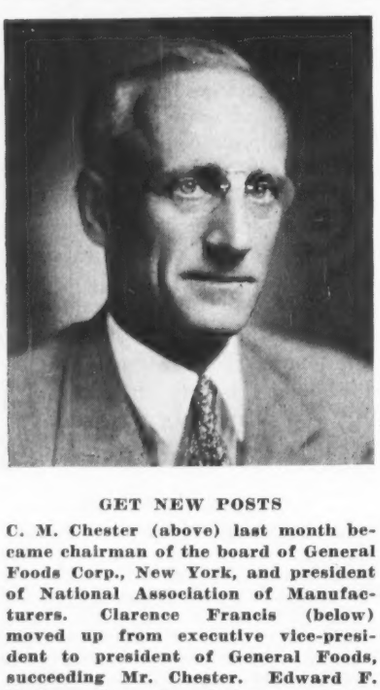
Yet every year we are compelled

by incessant demand to issue a pontifical handout. This year our analysis is five pages long. Space limitations here will spare you the labor of reading it in its entirety. The whole thing boils down to this:

"Food manufacturing costs will be higher in 1936 than in 1935 primarily because of increasing costs of raw materials. Self-preservation demands that selling prices be kept as low as possible to avoid shifts of consumer demand. Hence the normally thin profit-margins will probably be thinner in 1936."

Low-cost plants will have the easiest going in 1936, and will show the best profits when the auditors figure up the results. The only "out" is to utilize low-cost production methods.





GET NEW POSTS

C. M. Chester (above) last month became chairman of the board of General Foods Corp., New York, and president of National Association of Manufacturers. Clarence Francis (below) moved up from executive vice-president to president of General Foods, succeeding Mr. Chester. Edward F. Hutton, formerly chairman of the board, resigned. Mr. Chester entered the food field in 1919 as assistant treasurer of Postum Cereal Co.; Mr. Francis got his start in the sales department of Corn Products Refining Co. in 1910.

Pass the Food Law

EVERYONE in the food manufacturing business is looking forward to final enactment of the Copeland Bill in 1936. It ought to be passed without further delays. Minor amendments are still in order.

What Is a Unit Operation?

IN THE future you are going to see more about unit operations in FOOD INDUSTRIES. These are the methods by which foods are manufactured.

To visualize for yourself what a unit operation is, suppose you have some new invention that you want to manufacture. You don't want to give away any ideas until you get a patent, yet it is necessary to study out the ways of making it before the patent is applied for.

Assume that it is a trick meat product, but, of course, you wouldn't even mention the word meat for fear it would give away the idea. Your idea is that it must be formed in a certain way, cut into proper sizes, filled into containers and then sterilized. All right, these are four unit operations. (As soon as you discuss manufacturing methods instead of the product itself you are talking about unit operations.)

Refrigerated Bread

ALREADY there is enough evidence to show that refrigeration is going to be a very important factor, if not the most important factor, in maintaining the oven-fresh flavor of bread from bakery to consumer.

Who is going to be the first to work out the technology and the costs and economics of this method of bread handling? Think of the rewards that will come to those who can really put oven fresh bread on the consumer's table.

For Sounder Price Policies

IT IS incumbent on management to utilize self control if it is tempted to get wobbly on prices. Many a man can be easily fooled by the vagaries of volume of sales.

Unexpectedly large increases in sales volume do not necessarily imply greater consumption. Neither does a decrease in volume going out of the factory necessarily mean a cessation of consumption.

Before putting on an extra shift in the one case, or shading prices in the other it is well to confer with food manufacturers in *different* lines to see how their sales are going. If they experience volume changes parallel with that of your own business it means nothing more than changes in the amounts of goods in the channels of trade and there is no occasion for doing anything foolish or rash.

Opportunity

NORMALLY Italy exports about 160,000,000 lb. of tomato paste and canned tomatoes. Half of it comes to the United States while about a fourth of it goes to the United Kingdom. If Italy is compelled to retain most of its food at home there ought to be an improved demand for U. S. tomato products in these two markets.

That Dec. 9 Fiasco

TO know the inside workings of the Major Berry fiasco on Dec. 9 is to loose all respect for the integrity of the Federal Coordinator of Cooperation.

Major Berry's invitation to industry to come to Washington outlined the procedure to be followed at the general meeting, but qualified it with these words: ". . . subject, of course, to such changes as the meeting may recommend." Either that clause meant what it says or the Coordinator was premeditatedly insincere. One could hardly call him ignorant.

Accepting his qualifying clause at its face value, a group of manufacturers decided to ask questions from the floor—not to break up the meeting but to reveal the real purposes of Major Berry. Though he told the gathering in effect that "this is *your* meeting," he refused to recognize any discussion from the floor. His conduct of that meeting was not in accordance with his explicit promise, and invited delegates had no chance to express themselves.

John W. O'Leary, president of Machinery and Allied Products Institute, who had wanted to inquire into the purpose and scope of the proposed National Industrial Council, wisely refrained from addressing the crowd without the permission of Major Berry. In sharp contrast to this was the attitude of Berry when William Green of the A. F. of L. called for a general session in the afternoon. He got it.

Oddly, A. P. Haake, who called

Berry a liar, was not one of the group who were previously prepared to ask questions. His action was purely spontaneous, and it served only to precipitate the uproar that afforded amusement to some but accomplished no enduring results.

Round table group meetings that followed the general session were pitifully small—poorly attended, if at all. Most of them were conferences of not more than six or eight persons of whom two were government liason officers. In some cases these were the only ones in attendance. By no stretch of the imagination could these meetings be called representative of industry, nor was the Dec. 9 general meeting a conference.

Yet a cynic will admit there will probably be formed a National Industrial Council—a futile, useless, non-representative body. It will not be a council nor will it be industrial.

Recalling Technocracy

POSSIBLY some readers of FOOD INDUSTRIES may recall Howard Scott and technocracy. His dire predictions of technocratic disaster called for complete collapse of all things economic over a year ago.

We stated emphatically in the January, 1933, issue, on page 13, that the economic world would not collapse on July 1, 1934, the approximate date on which he prophesied it would come about. It is mentioned here not because we enjoy gloating over his possible discomfiture but to emphasize the great difficulty involved in predicting the future.

Those who like to do their own forecasting must always remember that most predictions are based both on a continuation of existing conditions *and methods of thinking*. And often they are disproved because men change their minds and ways of doing things. Successful prediction requires a prediction also of the probable changes that may take place in the minds of men.

Inflation Problem

THE possibility of further devaluation of our currency should be kept perpetually in mind, as long as the federal government is borrowing in order to spend more than it takes in by taxes. Management must plan its acts with this possibility in mind, and be ready to act when the time comes.

Unfortunately, not all things can be foreseen and prepared for. If a wave of fear causes flight from the dollar, prices will begin to rise. There will be many business men who will be tempted to try to hold their prices down. The wise ones will try to increase their prices at the right rate so that their capital resources are not dissipated. Costs of supplies go up very rapidly at such a time.

It will be an arduous task. The well-informed will know what to do but, to put their decisions into effect, may be exceedingly difficult. Up to now, no way has ever been discovered to persuade competitors to raise prices. If inflation comes, the firm which does not raise prices at the right rate, or at the right time, will in effect be a price-cutter.

This will constitute one of the more difficult problems to meet, one for which there seems to be no solution available at this time.

Effect of Truck Regulations

FOOD concerns will be more critical of their private trucking costs, even if nothing else results from the now defunct NRA trucking code and the regulations of the Motor Carrier Bureau of I.C.C. affecting only common and contract carriers. And, becoming more critical, they will probably discover many ways to reduce their own trucking costs.

Truck cost-systems, previously scoffed at as unnecessary, will come into their own and reveal the true facts as to costs. An accurate break down of costs will show where economies can be effected. And more thought will be given to the newer and lighter types of trucks, to a further extension of the trailer principle, and to all forms of plant equipment designed to reduce loading and unloading time. Still greater efforts will be made to keep the truck wheels turning during the greatest possible portion of the working day.

Inheritance Taxes and Jobs

WHEN men are invited to change responsible jobs, there are always a host of questions to be considered before making a decision, and since the new tax plans of the administration have been put into effect, there is one more angle to be studied. This one is very serious and involves the new inheritance taxes.

Anyone who is making a change of jobs and vowing that this is to be his last move, must consider the size of blocks of stock owned by large shareholders. Also he must consider the possibilities of radical changes of ownership if one or two of these big

Underwood & Underwood

MAJOR GEORGE L. BERRY
"This is your meeting..."—But was it?

shareholders should die. Will the heirs be able to pay the inheritance taxes, or will the stock be dumped on the market? Will such a move result in a change of management or will it strengthen the present control? Will a new set of owners show up who will demand all the good jobs for themselves? And, if so, what will become of the man who is a newcomer in the organization?

John M. Young

TO evaluate the influence of the late John M. Young, assistant to the President of American Can Co., in the food industries is difficult. He was a mechanical genius. His contributions to the industry include the development of high speed automatic machinery both for can manufacture and for the food manufacturer. Vacuum packing of coffee was his development. Also the collapsible tin can, for compact shipment when empty to remote points in Alaska, was his creation. Without his aid canned Hawaiian pineapple as we know it today would probably have been many years later in coming.

To say that he was ingenious in can manufacture is to overlook the fact that he was equally ingenious in helping food manufacturers to solve their problems. His influence belongs to both groups.

A Hotel Steward Looks at Food Manufacturers

The years before the depression saw enormous strides in the building of hotels, restaurants and other institutions and a corresponding increase in collective feeding—an increase which, even though slowed down in the past three years, still shows a large field of opportunity. With the upswing of business this year, there is every indication that the large hotel is here to stay, and that the collective feeding of humans will be a permanent feature of our civilization. With this in mind, the writer, a "back of the house" hotel man, submits some ideas which may be of interest to food manufacturers.

By C. J. HAUSER
Chief Steward, Prince Edward Hotel, Windsor, Ont., Canada

INSTITUTIONS or hotels are rather difficult places for the food manufacturer to contact, for the reason that the person who is buying is often a very busy individual with his time taken up completely by the needs of his house. This naturally implies that he has not time for much contact with the modern strides in food processing, and that he may possibly be somewhat prejudiced, at the same time, in favor of older and more established food ideas.

For example, there is the prejudice which exits in many places against canned vegetables. Even though the fresh vegetables may be wilted, with absolutely nothing to commend them except the fact that they are not in a can, there is always some champion to rise and proclaim against him who dares to put canned vegetables on the menu.

There is another prejudice, which favors the homemade manufacture of small batches of goods, fruits, etc., which are certainly not scientifically controlled, not standardized, and very, very dubious from the sanitary point of view. Yet there are, in the institutional feeding business, many who would consider the homemade product, with its mystery and doubt, superior to the article which is made in properly controlled factories with regular supervision. The writer remembers as a boy in Europe, the tinsmith who used to make tours through the kitchens of the bigger hotels, to solder the air holes in cans before the final processing. The hotels did not consider, at that time, that the manufacturers were doing as good a job as the hotels were themselves in the making of preserved foods. Even today, one finds many chefs making their own preserves, pickles and canned foods which would be more easily and more profitably made by the big specialist in his more scientifically-equipped kitchens.

OF COURSE, hotels and all eating institutions are run for profit, which can generally be more successfully obtained by having the canned product than by manufacturing it themselves. This is an idea worth remembering, for the writer's experience is that there is some doubt on this point and that there are cases where it is preferable to manufacture goods rather than to buy them. Canned soup would be the classic example, for the average hotel uses the byproducts of the kitchens to make soup, which naturally makes the cost quite low. The food manufacturer has the advantage of standardized product and dependability, plus lower labor costs on the part of those who use a made product.

Now the great disadvantage of using a standardized or made-up product is that the place serving it tends to lose its individuality, which is another point worth thinking over. "Mother's cooking, like Mother's bread," is never the same two days running. There might be an opportunity for some enterprising manufacturer to make a product which could be varied at will, or to have some method of changing the flavoring. In respect to the small garnishes, which are a big nuisance to make and take up expensive time, such as strips (Julienne), stars, cubes, etc., there is certainly an opportunity for some one to put these up, say in gallon cans. The writer is thinking of a French firm which sells quite a lot of Macedoine and he suggests that someone could develop the market for this in this country, with variations, using larger-sized cans.

Another point that is worth remembering is that even with the lowering of hours and the increasing of wages in hotels, we find that it is impossible to get the old type of hotel cook which we had 25 years ago. One reason is that the factory takes many of the younger men and that the stigma of the kitchen makes the life less attractive for the remainder. Here the manufacturer has his trump card, for the person who is buying is usually glad to have the goods on his storeroom shelf ready to warm up and send in to the hotel guests without any trouble.

Let us consider now the steward's

point of view when buying canned goods: In the first place, he is naturally interested in the contents of the can so why waste money on expensive labels on large cans? The writer makes it a point to weigh the strained contents of the test can which naturally determines just what one is paying for. It is the extra ounce of water which might be in one can that is the crux of the deal.

Experienced stewards endeavor not to buy canned foods from the same source year after year, nor to purchase all of their supplies from the same manufacturer in any one year. This serves two purposes, First, it insures some variety in flavor of foods served; and, second, it assures the receipt of quality goods, which is unfortunately not always the case when purchases are made continually from a single source.

December to May is the period of purchase and also the period of greatest use of canned foods by the hotel or institution. It follows that, since little stock is carried over on the hotel shelves, the hotel has the advantage of consuming always the fresh crop, provided the steward purchases wisely.

Purchases of dairy products for hotel or institutional use are better made from several small creameries than from one large creamery, as it is possible for the steward to control the quality of the goods purchased better in the former case. Of course, butter, cheese and eggs have for the past century been out of the control of the hotel man. When he purchases these foods, he is really buying manufactured goods from the wholesaler. Here the paramount question is of quality, for it is obviously impossible to deceive a steward as to the quality of cheese by wrapping it in a golden cellulose wrapper. At the same time, when on the cafeteria counter, the small, fancy packet which usually looks so nice is a better seller than bulk cheese, with its possibilities of drying out.

THE basic question of the relation of the buyer to the manufacturer in the institutional line is the cost item, with quality of course being the high level for which to strive. Consequently, it seems to me that if the manufacturer wishes to enlarge his market in this field, his best plan is to cut out all unnecessary frills, such as lithographed labels, expensive advertising, and get down to the point where he is in competition with the cost of raw foods plus the cooks' wages plus cooking costs plus handling charges. Then, he should endeavor to give more individuality to his lines, to enable variations, and emphasize the ease of making these variations. In other words, the manufacturer should enable one particular hotel or restaurant to serve a certain dish in such a way that no one else could duplicate its flavor. Such a course would create a steady market for the product in question.

As an example, take the case of pickles. Homemade pickles can be a wonderful food if made with intelligence and skill, and, at the same time, they can be made cheaply. Then why do we buy them? Because we do not usually have the necessary knowledge to make them satisfactorily. This purchasing condition exists in many food lines. Consequently, with a little pressure, the sale of superior products could be increased at the expense of the homemade articles, if the manufacturer would adapt his products to institutional needs.

THE general public, through advertising and through the women's columns of the newspapers, has become food conscious to an extraordinary degree. This fact should be taken into account by the manufacturer who wishes to build up his sales in the institutional market. If this is done and the types of foods that the hotel steward desires are made available, this market should grow rapidly. The hotel would then cease the manufacture of garnishes and those many smaller items which it now makes. Eventually, the hotel kitchen would be devoted largely to the warming up of canned foods supplied from a well-appointed storeroom, staffed with experts in the selection of those manufactured foods needed for supplying the fancies of a discriminating public.

The author (left) weighing the drained contents of a can of vegetables to determine which of several manufacturers' products gives the hotel the most for its money.

How We Made Our Record of

734,000 Man-Hours Without an Accident

By ROBERT B. McDADE

Atlantic Sugar Refineries, Ltd., St. Johns, N. B., Canada

INTENSIVE accident prevention has been practiced at this plant since about 1928. The immediate result was a reduction in accident compensation cases of approximately 50 per cent.

This, while gratifying, has never satisfied us. We had read in the safety magazines of reductions of 75 to 90 per cent, and of plants working more than a million man-hours without a lost-time accident, whereas 100,000 hours seemed to be our limit.

At first, we were organized for accident prevention along conventional lines, with a safety committee of workmen and foremen, a part-time safety engineer selected from our mechanical staff, bulletin boards throughout the plant, and competitions between departments for a safety trophy, among other things.

It gradually dawned upon us that in trying to control accidents through a safety committee we were operating in a fashion contrary to that by which we had successfully accomplished everything else that had been done around the plant.

When we became dissatisfied with the housekeeping some time before, did we appoint a committee?

We did not. We appointed an inspector, but he was nothing but an inspector. He turned in a weekly report of conditions as he found them and his responsibility ended there. What we did do, was to get the superintendents together and tell them the refinery was altogether too dirty, emphasizing the value of cleanliness, and telling them that thenceforth and thereafter, keeping their respective departments clean and orderly was a definite part of their regular duties.

Each superintendent, in turn, got his foremen together and took the matter up with them in a similar way.

And we did everything else in the same way. We stopped smoking around the plant, simply by telling our superintendents and foremen that there wasn't to be any.

We keep our products free from contamination by the same system. And that is how we prevent wastage and spoilage of material.

Superintendents and foremen are picked men, selected for their ability to do things. All you have to do is indicate what you want done and make it important. Then, they will do it. So, we decided to handle safety the same way, and it has seemed to work. We have retained all the features of our original organization, except the safety committee and safety engineer. In 1934, we had a frequency rate of 1.05 and a severity rate of .01, which the National Safety Council considers an outstanding record for plants in our classification. This frequency rate is based on the number of accidental injuries per million man-hours work, while the severity rate is determined by the number of days lost from injuries per 1,000 hours work.

Immediately after getting superintendents and foremen together and telling them that preventing accidents was their job, we started to make our record of 734,000 man-hours without a lost-time accident.

We are not too elated by this record, because soon afterward, we had a severe and unnecessary accident—and it was a foreman's fault, too.

You may ask why one cannot put the responsibility for accident prevention on superintendents and foremen, and still have a safety committee to help the good work along. We do not know just why you can't; but you can't. If you have the committee, your whole organization persists in thinking that accident prevention is a committee's responsibility, not any one's else.

It was the complaint of a foreman that the safety committee had never noticed a hazardous condition in his department that woke us up. Then, by a similar process of observation and reasoning, we came to believe that appointing any man, except our chief engineer, as a safety engineer, even though he was a very capable man, was a mistake.

WHEN you have a safety engineer, you have one man in your mechanical department interested in safety. When you tell your chief engineer that the mechanical features of accident prevention are in his hands, you have a whole department working for safety. Insofar as we do have a safety man, aside from the manager (he is our chief clerk) he understands the system and operates through the manager and superintendent. He keeps safety records, distributes safety literature, services bulletin boards and makes suggestions to the manager.

We believe in all methods of maintaining interest in safety which do not interfere in any way with the line of responsibility already indicated. We are quite sure that meetings of foremen and general meetings of men, addressed by the manager, other officials or by some outsider, are beneficial, and we think competitions are useful. We use bulletin boards, of which we have ten departmental ones, in addition to the main illuminated board in the Gate House. We have found the National Safety Council a splendid source of supply for safety ideas.

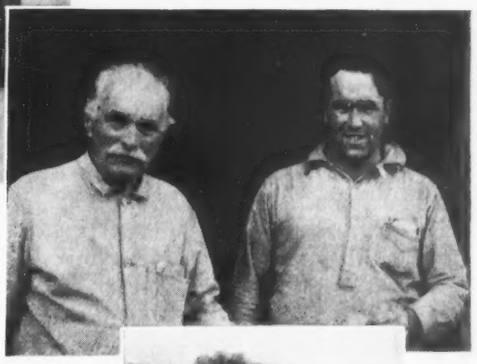
We believe in danger signs and in mechanical safeguarding. Mechanical safeguarding in a sugar refinery is not materially different from that in other factories, although special thought must be given to the danger of scalding by hot water or syrup, burning by the many steam pipes (which should all be insulated) and slipping on smooth floors on which thick syrup has been spilled.

Enclosed tanks or chambers which may contain a little dilute sugar solution, remaining from the last time they were used, must not be entered, because carbon dioxide from fermentation may cause almost immediate suffocation. Being heavy, this gas is not dispersed, even if there is an opening in the top of the chamber.

First aid in this plant is in the hands of the chief chemist and his assistants. They have studied the subject. Doctors are available quickly for severe cases.

Loads of corn are dumped on concrete floors under sheds until the test is made to determine the quality and compensation for the farmer.

Below: The young man at the left is E. W. Jones, for 44 years in charge of one plant, is now in his 60th year in the business. Assisting him is his grandson E. P. Jones (right). When E. W. Jones took charge in 1891 he had already had sixteen years of experience.



"Corn-Shops," Down in Maine

PART I

By L. V. BURTON
Editor, FOOD INDUSTRIES

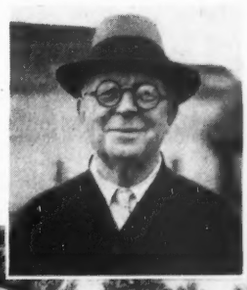
"WHICH WAY is the canning factory?" I inquired of a middle-aged man near the monument in Fryeburg, Me.

"Canning factory? Canning factory?" he repeated in a dubious tone. "Oh, you mean the corn shop."

This was my introduction to a series of local expressions, all pertaining to the canning industry, yet all wholly unfamiiiar to me, despite the fact that my actual service in the industry has been long enough to qualify me for membership in the "Old Guard Society."

In the Middle West and Far West such plants are canning plants, canning factories or canneries. But along the "Shore" (the eastern shore of Maryland) they are often called "can houses," while "down in Maine" they are "shops"—usually "corn shops."

One soon learns the local vocabulary, however, and finds that the man in charge of a corn shop is not a superintendent, but is a "foreman"; that a plant which does not process corn but merely cuts it from the ear is a "cuttin' shop."



Above: F. G. Millett in charge of Norway, Me., plant of Portland Packing Co.

Left: F. P. Bennett has been running the Burnham & Morrill plant at Harrison, Me., for 45 years.

The newest plants are equipped with complete conveying systems such as Burnham & Morrill's new plant at Center Fryeburg.

Also he learns that to process or to sterilize cans is to "bath" them. Or that the operation is called "bathing," pronounced to rhyme with lathing. "Bath" is pronounced "baath," with a Harvard "a" and is never pronounced with a long "a." The retort is the "bath." To sterilize is "to bath," and the pans in which the cans are placed for sterilization, in the square retorts that are used by practically every corn shop, are "bath pans." Out in California, pans which resemble them are known as "coolers."

Another novelty to the Midwestern ear is the frequent reference to the period when the corn is "up." To me, "up" means the time when the corn comes through the ground, and I could not understand how it would be profitable to have corn planted so late in the year that it came through the ground in September. Later I was to learn that "up" referred to the period of suitable maturity of the ears for canning.

ONE also learns that a man with only ten or twenty years of experience is a mere child in the business. At North Fryeburg I met E. W. Jones, in charge of H. C. Baxter's plant, a job he has held for 44 years. He had had sixteen years of experience in the business when he first took charge of the plant, and 1935 was his 60th year in the canning business! Associated with him are his son, P. E. Jones, and his grandson, E. P. Jones. When the grandson, who modestly admits he is assistant foreman, introduced me to his grandfather, there was a distinct note of pride in his voice. I was very sorry that P. E. Jones, of the intermediate generation, was away for the day. In large corn canning plants in the corn belt, P. E. Jones would have been called a receiving man or superintendent or foreman of the husking shed, but in Maine, he is known as "yard-master."

Nor was E. W. Jones, the only man of long years of experience that I had the pleasure of meeting. At Harrison, Me., is F. P. Bennett, in charge of the Burnham & Morrill plant. He has been in active charge of that plant some 45 years, but his service totals only 54 years, compared to the 60 years of Mr. Jones.

"Bath pans," both filled and empty, on the cooling platform.

But times are changing, and younger men with technical training are coming into these "foremen" jobs, such as R. C. Dunn at the Burnham & Morrill plant in Center Fryeburg, or H. L. McIntyre at Denmark, both being graduates of the University of Maine.

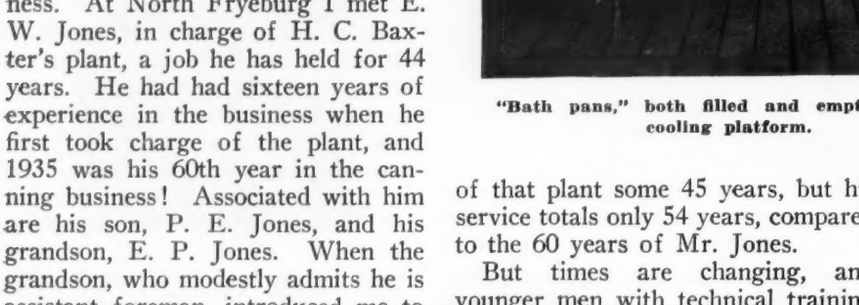
The penetration of science into the industry, and intrusion of complex technical problems brought about by the constantly changing economy of the food industry are creating new opportunities for food engineers.

Maine is also packing considerable of its corn in No. 10 cans, holding five-sixths of a gallon, which introduces problems of cooling under pressure after sterilization to prevent the buckling of the can. This in turn requires automatic temperature-pressure control equipment. Where only the smaller No. 2 cans are used, the industry depends on the vigilance and skill of the "bath man" or retort man to maintain proper temperatures and time of process.

Out of every four plants there are three that are equipped with small square retorts, or "baths" that typify the processing equipment used in the canning factories of the state. These square retorts are so small that they will not hold more than a quarter of the load of cans that are normally placed in the round vertical retorts of the larger plants in the Mississippi Valley. To equip each of these small retorts with an individual automatic temperature controller would require an investment in instrumentation that would be at least four times as great per thousand cases of goods produced as would be required where large-size retorts employed.

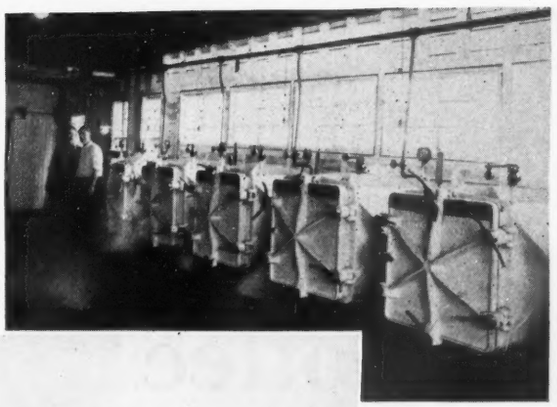
Recognizing that one of the outstanding characteristics of New England is the desire to make things do as long as they will work, there is one way in which automatic control can be installed without an excessive instrumentation cost. This is by the use of a dual system of steam pipes, one for bringing the retort up to process temperature under manual control, the other under automatic pressure control to maintain the desired pressure after shutting off the first line. This system admittedly has its limitations, however, and only one plant of those which were visited used this system. Its automatic line appeared to be a pipe of too small a diameter to insure effective automatic controlling.

Such a comment is reasonable, because only a person who has made



The warehouse at the far end of this plant at Farmington is heavily insulated and heated to protect its contents against the rigors of Maine winters.

careful studies of pressure and temperature fluctuations at the distant end of a series of steam pipes in relation to pipe sizes has any adequate idea of the importance of large pipes. This applies to all sorts of applications of process steam, whether it be to kettles, dryers, rendering tanks, cookers, retorts or evaporators.



These small square pressure retorts are called "baths." To process or sterilize is "to bath" the cans.

Husks and cobs drop to a concrete platform under the husking and cutting department and are then trucked away to farms.

For the unit operation known as material handling, the newest Maine corn plants have adequate corn conveyor systems. Many other plants expend an amazing amount of human energy. No doubt this affords a larger amount of employment than would otherwise be possible, and therefore is socially desirable, but Maine plants are in competition with highly mechanized plants in other parts of the country and the time will soon come when Maine will be compelled to mechanize or take a beating on costs.

At one plant, a sizeable group of employees were husking corn by hand, despite the fact that a line of automatic husking machinery was standing idle at the time. Whether or not there was a breakdown could not be ascertained for nobody on the premises would admit to being in charge of the plant, not even a managerial looking person sitting in the office issuing instructions to several people.

Most Maine corn shops are rather small: so small, in fact, that they cannot economically employ low-cost manufacturing methods. This probably accounts for the large amount of handwork that is done. Yet, while it is true that the depreciation charge on mechanized material handling equipment is just as much of a real item of cost as is direct labor on a cost sheet, it is equally true that the combined cost of power, depreciation, maintenance and direct labor in a mechanized plant is usually noticeably less than the corresponding charges in a non-mechanized plant, provided, of course, that the former is of an economic size.

Inquiry as to the reasons for the small size of most of the corn shops revealed several interesting answers. First of all, the majorty of the plants, as far as they were visited, were built many years ago. Several were from 50 to 70 years old. One of them was "an old plant" when the man in charge first assumed that responsibility more than 40 years ago. Nobody seemed to know just how old it was.

IN THIS day of motor trucks it is hard to realize that the oldest plants were once supplied by raw material carried largely in ox-carts. The economic manufacturing unit of half-a-century ago was a plant that could take care of all of the sweet corn that could be procured within a radius small enough to be brought in with oxen and get the farmer home that same day! And there are men in the industry today who can remember it. Furthermore, farms in Maine are small, with small fields. And agriculture is highly diversified in Maine. Sweet corn fields, from 40 to 640 acres in area, such as are frequently seen in Illinois, Iowa and Minnesota, are unknown in Maine. Furthermore, Maine farmers don't put the whole place into a cash crop like Southern farmers do, which probably is the reason why Maine is still a prosperous state. All of these factors, however, resulted in corn canning plants of a size commensurate to the supply of raw materials available within a given area of procurement.

It would seem, however, that the use of the motor truck must soon bring about a change in the size of the economic factory in that part of the world.

The pinch of high costs has been felt acutely during the depression, however, with the result that a number of plants are closed. Many concerns are trying a variety of experiments to circumvent the handicaps of uneconomic size. New plants such as those at Skowhegan, Farmington and Center Fryeburg are being built larger than average and they are equipped with low-cost production facilities. This move is in the right direction, but in my humble opinion, based on but a single tour through the state, the most economic size is probably still larger, even in Maine.

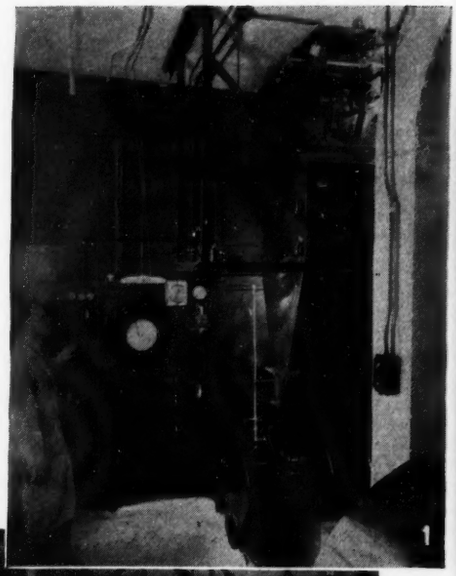
ANOTHER step toward low-cost production is the movement to build so-called "cuttin' shops"—plants which receive, husk and cut the corn from the cob, but do not process it. The cut corn is transported to a canning plant elsewhere for further processing. Most of the corn so handled is destined to be packed in No. 10 cans.

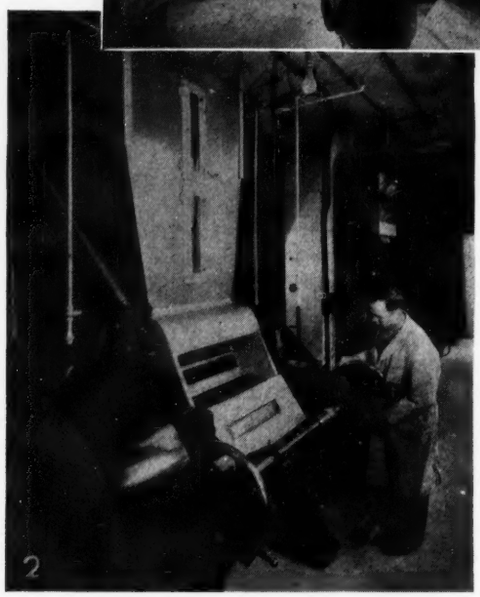
A few concerns have built "cuttin' shops" where no other work is done but the preparation and cutting of the corn. But most of this development has gone in the direction of cutting corn in regular small canning plants, packing only part of it locally in No. 1 or No. 2 cans and shipping the rest elsewhere for packing in No. 10 cans.

Part II will appear in an early issue.

Research Engineering Put the Flake in

Flaked Coffee





Search for method of preserving inherent quality in roasted coffee led to discovery that compressed coffee particles can be kept indefinitely if sealed airtight in CO_2 and also without bulging of cans. Incidental discovery was made that flaking increases degree of extraction by water more than 35 per cent over that of commercial coffee grinds. Preparatory cleaning, blending, roasting, and grinding operations are carried out essentially the same as for ground product.

By E. S. STATELER
Associate Editor

EMPLOYING operations and equipment, the use of which is unprecedented in the preparation of coffee for the commercial market, flaking of coffee[1] has for its success invoked application of engineering of the highest order.

Not only has use been made of advances in technology in other industrial fields, both of food and non-food character, but new equipment has been designed and equipment familiar to other industries adapted in construction to meet the needs of this special use.

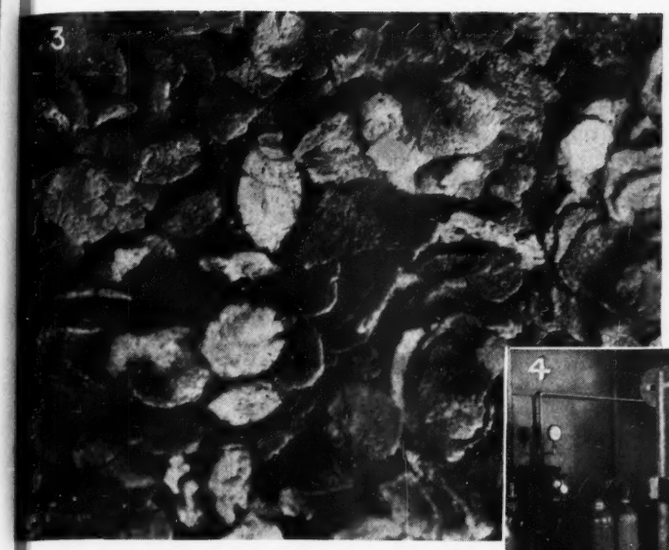
As a product, flaked coffee is not the offspring of a brilliant idea nor the result of an accident. It has had an evolutionary development. When R. B. McKinnis, Continental Can Co., Fellow at Mellon Institute of Industrial Research, began his work on roasted coffee and its preparation the program provided for developing a process or means of preserving the roasted coffee for an indefinite period.

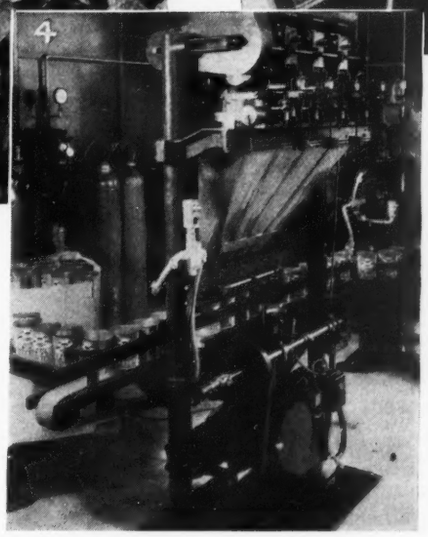
His particular object was to retain the desirable qualities of the coffee and to determine if roasted coffee could be packaged in an airtight container without the development of bulged can ends; a source of annoyance to grocers and cause for suspicion of deterioration in quality by consumer buyers.

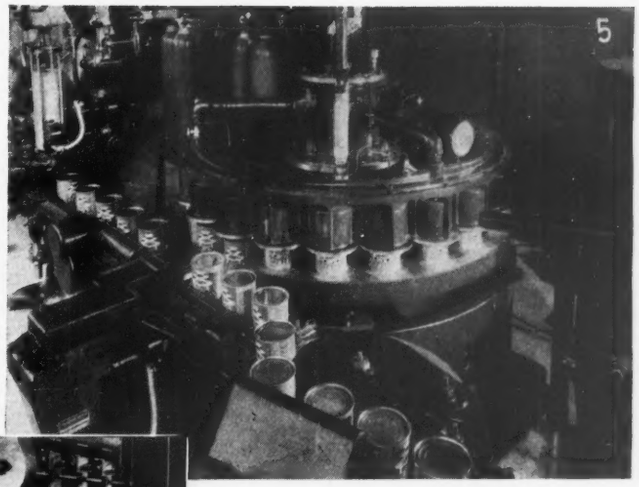
ANALYSIS of gas in bulged cans indicated that the bulging was due to evolution of CO_2 by the coffee; also observation was made that the rate of CO_2 evolution was speeded up by grinding. Subjection of roasted coffee to hydraulic pressures of 15,000 and 20,000 lb. per sq. in. revealed that sufficient quantities of the CO_2 content of the coffee were expelled to permit it being packaged in air-tight containers without bulging of the cans and without further deterioration in inherent quality. Further discovery was made that this compressed coffee could even be sealed in CO_2 under slight pressure without bulging of can ends; instead there was evidence that the coffee actually absorbed about 5 per cent of the gas.

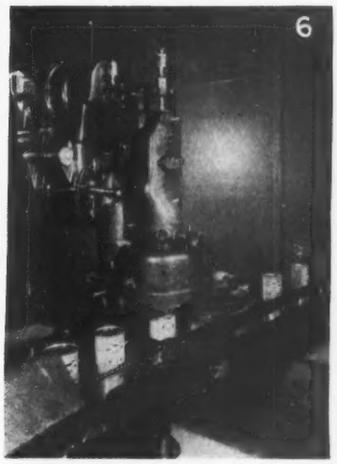
Another stage in the evolution of the product developed from an effort to convert the batch method of processing to a continuous one and to overcome the difficulties encountered when the pressed coffee was brewed. To these ends resort was made to passing the roasted coffee through an experimental set of smooth-surfaced rolls of the type used for flaking breakfast cereals, compounding pigments into crude rubber, or refining

[1]U.S. Patents Nos. 1,903,362; 1,975,011; 1,009,321. FOOD INDUSTRIES, May 1934, p. 238 and November 1935, p. 547.









1. Automatic weighing and moisture-content adjustment of 100-lb. batches of coarsely ground roasted coffee is the first step in the making of flaked coffee. Panel at left contains master push-button operating switch, the time cycle regulator control unit for interconnected motors, visible flowmeter for water sprayed into tempering machine, and the recorder indicator registering pressure at which flaking rolls operate.

2. Stainless steel corrugated roll feeds tempered coffee from hopper to smooth-surfaced chilled-steel rolls at rate of 12½ lb. per minute. Rolls are adjusted to desired pressure by hand wheel connected with both ends of near roll. Compression type mercury cells on each end of far roll register pressures at which each end of rolls operate. Specially designed conveyor transports flakes to weigher-filling machine at right.

3. Grinding of roasted coffee beans is regulated as closely as possible to give particle which will flake to 0.006 in. thickness and approximately ¼ in. diameter under 10,000 lb. per sq.in. pressure.

4. Tinned sanitary metal spouts deliver weighed flakes from aluminum weigher buckets to inverted 10-oz. vacuum-pack type packer cans. At left rear is the two-stage reduction gassing system for CO_2. Filled cans pass directly to lid clincher at right. Motors of machines are interconnected through automatic operating switches seen on both filler and clincher.

5. From clincher at left loosely lidded cans are automatically feed into vacuumizing-gassing machine to be subjected to a vacuum 3 mm. less than perfect and charged with CO_2 under 1½ lb. per sq.in. pressure. Vacuum gage visible on front center of machine is calibrated to ½ mm. pressure and indicates pressures of ¼ mm.

6. In final operation the gassed cans are sealed in a standard single-head double-seamer and marker and delivered to packers.

to a state of smoothness such materials as paints, inks, and chocolate liquors and pastes. With adjustments for moisture content, particle size, and pressures used the results obtained from this set of rolls, encouraged the development of an experimental laboratory plant in which details of equipment design and coordination of operating units could be worked out preliminary to flaking of coffee on an industrial scale. An incidental discovery was made that coffee not only did not deteriorate after flaking but that the inherent quality of the roasted freshly ground coffee was retained with full oil and aroma content and that the degree to which the coffee was extracted by water was improved as much as 35 per cent over that of the "universal grind" coffee of the same blend and degree of roast.

Developments to the stage of working out details for an industrial-sized plant were actually only the opening of gates into a field of research engineering.

That the Grand Union Co., one of the largest chain store food manufacturing and merchandising organizations in the United States on Oct. 1 of this (1935), year enthusiastically introduced flaked coffee in 10-oz. lithographed vacuum-pack type tin cans to its large east-central New York State sales area is evidence of the technological and mechanical success of the research project.

IN a large measure the process steps which had to be worked out had to do with putting the flaking operation under such control that the flakes would be of reasonably uniform size with emphasis on uniformity of thinness; that the operation could be continuous from time of starting a production run until its end; and that the rate of production would be great enough to make the project economically feasible. Preparing the coffee for flaking, conveying it from one operation station to another, weighing it into the cans, exhausting the filled cans to remove all free-oxygen-containing air, charging the filled cans with correct volume of CO_2, and air-tight sealing of the cans presented

problems which demanded their share of engineering study and inventive versatility.

For merchandising reasons, the Grand Union Co. has a special blend of coffee for flaking. These coffees are given a full roast as though intended for ground coffee. Also the blend is ground on the standard Jabez Burns & Sons "All-Purpose" coffee granulator. However, in this instance the mill is set to give the highest percentage possible of coffee particles through the No. 12 and retained on the No. 14 standard screen.

From the supply bin, which is fitted with a Ripley Manufacturing Co. bin-level indicator developed for the cement industry, the movements of the coffee are under the automatic control of a Taylor Instrument Co. time cycle regulator. Relays actuated from this central control instrument coordinate and synchronize the operations of all equipment units so that the coffee moves along the production line at the rate of 100 lb. every eight minutes, which is the rate at which the flaking rolls operate continuously.

WHEN the production line is thrown into operation the coarsely ground coffee is discharged from the supply bin in 100-lb. batches into a Richardson automatic enclosed type overhead scale. As one batch is delivered by gravity into the tempering unit a second batch is being weighed ready for automatic delivery as soon as the first batch is discharged from the tempering machine.

Specially designed and built by the Continental Can Co. this tempering unit subjects the ground coffee to a fine mist of water sprayed from twelve nozzles placed at regular intervals the full length of the unit between its twin chambers of aluminum construction. Allegheny-steel spiral agitators roll and toss the coffee in and from one chamber to the other through this mist to give it a definite uniform moisture content. This treatment imparts to the coffee a plastic quality conducive to controllable flaking.

A constant uniform supply of water filtered through American Filter Co. Tripoli stone is delivered to the nozzles at 70-lb. pressure by a Northern Pump Co. close-direct-connected 3 EY gear pump through an Ashcroft American pressure regulating valve supplemented by a Hauck Manufacturing Co. micro-regulating valve to minimize fluctuations in pressure. By means of a Schutte & Koerting Co. visible flowmeter on the control panel the operator is able at all times to determine the constancy of the supply of water to the tempering chambers.

After a definite tempering period the time cycle regulator cuts off the water spray, opens the discharge gate of the tempering machine, and starts the heavily tinned self-emptying bucket conveyor to deliver the coffee to the feed hopper over the flaking rolls. At the end of the discharge period, the gate is automatically closed, the scale hopper dumped, and the water spray again turned on for another tempering cycle.

The conveyor transporting the tempered coffee from discharge under the tempering machine to the feed hopper over the rolls is of special Lamson Conveyor Co. design operating through a short horizontal leg, a 10-ft. vertical shaft, and a 4-ft. overhead leg and driven by a ¼-hp. dustproof Master motor.

WHEN the aluminum feed hopper has been charged with tempered coffee the rolls go into operation through an automatic compressed-air clutch control. A push button switch on the roll unit makes connection for the clutch. Also the automatic control is so interconnected that the other units under the time cycle control will not operate automatically until the switch on the rolls is pushed.

Through Reeves transmission a stainless steel corrugated roll feeds the coffee to two 18x30-in. water-cooled, smooth-surfaced chilled-steel Allis-Chalmers rolls at the rate of 12½ lb. per minute. When desired the speed of this feed roll can be speeded up to the rate of 16 lb. per minute.

Driven through a multiple V-belt by a 15-hp. motor each roll has a speed of 120 r.p.m. and both rolls are adjustable to exert a pressure between their surfaces from 0 to 50,000 lb. Space between the roll surfaces is closed by a hand-wheel connected with both ends of the near roll. As a matter of precaution against unequal pressures between the rolls each of the ends of the far roll are fitted with a compression type mercury cell connected with a Taylor recorder indicator. The recorder is equipped with duplicate pens to register on the indicator chart the pressure on each end of the roll.

Operating at a pressure of 10,000 lb. per sq.in. these rolls convert the angular plastic coffee particles into approximate disk-shaped flakes 0.006 in. thick and about ⅛-in. across. Another specially constructed Lamson self-emptying bucket conveyor transfers the coffee flakes from the receiving hopper under the rolls to the feed hopper over the J. L. Ferguson Co. four-bucket automatic weighing filler which delivers the flakes through tinned sanitary metal chutes to 10-oz. vacuum-pack type cans at the rate of 30 cans per minute.

Constructed of Allegheny steel the filler feed hopper is baffled to prevent clogging or bridging. Its upper baffle is connected with a Jefferson Electric Co. enclosed, non-breakable new type mercury switch which, when the hopper is filled to upper baffle, cuts out the flaking rolls. In turn the tempering unit is automatically shut off. In this way a clogging up of the production line is avoided in case there is a delay or breakdown in the line at or beyond the filler unit.

From the filler the cans pass directly to a standard Continental Can Co. sealer which has been converted into a clincher to crimp the lid onto the can sufficiently tight to prevent loss of coffee particles but loose enough to permit vacuumizing and subsequent gassing.

IN the final steps of packaging flaked coffee the filled cans are automatically delivered to a specially designed Continental Can Co. vacuumizing-gassing machine in which in lots of seven they are subjected to a vacuum, 3 mm. short of perfect, to remove all atmospheric air before they are charged with CO_2 under pressure of 1½ lb. per sq.in., delivered to a single head sealer and marker, and cartoned ready for shipment.

Vacuum of 3 mm. short of perfect is obtained in the cans by a single stage Kinney Manufacturing Co. piston type pump designed for vacuumizing electric light bulbs and radio tubes.

In construction the vacuumizing-gassing machine consists of a rotating overstructure divided into 21 compartments open at the bottom to permit complete insertion of a coffee can and fitted with an automatically controlled valve and connections to the vacuum pump and a two-stage (double reduction in first stage) reduction Pure Carbonic Co. CO_2 gassing system. Complementing this compartmented overstructure is a three-segment can-carrying plate which rotates

(Turn to page 52)

An American Looks at

European Indifference to Ice Cream

This is the last of four articles on European dairy manufacturing and marketing practices

By H. A. BENDIXEN
Associate Professor of Dairy Husbandry, State College of Washington, Pullman, Wash.

This "Bolle Ice-Bomb" is used in Germany for shipping ice cream and will keep the product hard for 40 hours.

IT SEEMS STRANGE that the ice cream industry, which has seen such phenomenal growth in the United States, has made such slow progress in the Old World.

As a matter of fact, one can hardly speak of ice cream manufacturing in Europe as a separate and distinct industry because most of the ice cream is made by confectioners, by restaurants, hotels and peddlers, and only a small proportion originates in dairy establishments. A few years ago, an attempt was made by the dairy industry to go more extensively into the wholesale manufacture of ice cream but with comparatively little success. Today the manufacture of ice cream in Europe has largely fallen back into the hands of the confectioners, the individual peddlers and the hotels.

Several reasons are ascribed for the lack of any great success in the introduction of the ice cream industry to Europe. First of all, economic conditions have kept ice cream very largely in the luxury class of food. Only the more fastidious trade can afford to buy ice cream and, in supplying this trade, hotels and cafés have preferred to manufacture their own special product from their own formulas and thus endow them with the stamp of their own individuality.

Furthermore, Europeans, and especially the German people, show no particular fondness for this product, except in the case of children, and for children, according to a quaint common belief, ice cream is a confection of rather questionable merit. As a matter of fact, I was told that the sale of ice cream to children not accompanied by their elders was unlawful in many places in Germany although the law evidently was not very strictly enforced. The chilling effect of ice cream on the digestive system was generally feared as harmful to health. Adults, because of ancient customs and ingrained food habits prefer beer, wine, carbonated beverages, coffee and cake. Thus it may be discerned that to sip an ice cream soda is not the great indoor sport in Europe, and per capita consumption of ice cream, therefore, is low.

Nevertheless, in the better hotels, ice cream of excellent quality is nearly always available. Products sold by peddlers from street carts were usually in the nature of sherbets or ices and were sold in cones or between sugar wafers. Some of the milk plants in the larger cities, such as the Bolle Dairy in Berlin, were producing considerable amounts of ice cream. In Berlin, rather high summer temperatures of course aid the sale of the product.

AN interesting method of merchandising ice cream at the Bolle Dairy is the use of the "Bolle Ice-bomb." The ice cream is molded into the shape of a large thimble, either in layers of various flavors, or in single flavors. A vegetable parchment circle is placed on top and on the bottom of the hardened ice cream. A bottomless paraffine paper cup is inverted over the cone and this package is now placed inside of the bomb which is made in two halves, consisting of hollow cartridges containing a substance chilled to a low temperature in the sharp room. The bomb containing the ice cream is then packed in iceless packers or sometimes in excelsior, paper, or sawdust. Ice cream was said to remain hard in these bombs for 40 hours.

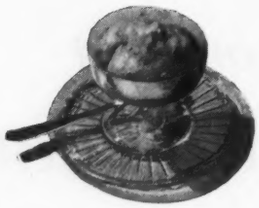
In a large dairy in Vienna, considerable ice cream was manufactured and similar ice-bombs were used. Dry ice was also used to some extent. Both a 5-per cent and a 10-per cent ice cream were sold and also frozen suckers and ice cream cups. Total solids in the ice cream ran from 34 to 36 per cent.

In Russia, ice cream of good quality was served at the hotels in Moscow and Leningrad, but little ice cream had been made by the milk plants up to the time of my visit.

In Denmark, the creameries have been enthusiastically boasting of ice cream in recent years. Professor Mortenson of Iowa State College gave the first short course in ice cream making in Denmark some years ago (about 1926) and for his services he was knighted by the king. A Danish-American by the name of John Larson established the Premier Ice Cream Co. a few years ago in Esbjerg and invested a great deal of money to introduce the industry in Denmark after the American pattern. Some excellent ice cream was sampled in several Danish creameries, most of it containing 12 per cent of butter fat. The industry is slowly gaining a foothold in Denmark. The Danish Ice Cream Manufacturers Association has now about 50 members.

In England some of the larger dairies, such as the Midland County Dairy at Birmingham, manufacture high quality ice cream. However, the ice cream or cream ice as it is often called, cannot be said to be very popular in English eating places.

Ice cream, while available in all European countries, has nowhere become a staple commodity or an important industry.



Overrun

What It is and What It is Not

By J. H. SHRADER
Sealtest System Laboratories, Inc., New York, N. Y.

OVERRUN in ice cream is a subject which interests both the manufacturer and the consumer. A proper overrun largely determines the quality of ice cream. It is unfortunate that certain food faddists and sensation mongers periodically try to arouse the public by attempting to make it appear that the incorporation of air in ice cream is a practice intended to defraud the consuming public.

What is overrun? Overrun is the so-called "swell" or increase in volume of ice cream mix when air is beaten into it during the process of freezing. Ice cream mix is made of cream, milk, sugar and some flavoring material. This mix is pasteurized, cooled to approximately 40 deg. F., and pumped or drawn into the freezer. After the mix is drawn into the freezer, the dasher is rotated at high speed. This operates to beat air into the mix. The air is in the form of minute bubbles which are uniformly distributed throughout the mass of cold mix. At the same time the mix is cooled to around 21 to 25 deg. F. This greatly increases the viscosity of the mix so that it will hold the air which has been beaten into it. At the conclusion of the operation the mass is found to have increased greatly in volume, the increase ranging anywhere from 70 to 110 per cent of the original volume of the mix. The extent of this "overrun" is largely determined by the composition of the mix and the type of ice cream being made, *i.e.,* factory package or bulk.

The relation of overrun to quality of ice cream is so important that the industry has developed instruments for measuring overrun in order that successive batches may be of equal quality.

THE question is often asked why there should be any overrun at all. The idea of beating air into the mix and then freezing it seems to a lot of people to constitute a fraudulent practice. Usually any such idea is entertained only by virtue of the fact that it is not generally understood why overrun is necessary in a palatable ice cream. Any housewife who has endeavored to make ice cream in her refrigerator cabinet can appreciate the skill of the ice cream manufacturer in making a product so different from what she usually turns out. Her product is usually granular and often contains large ice crystals. Numerous products are sold for her to use in her mix to impart fluffiness. In other words, the housewife tries to get an overrun.

Overrun in manufacturing ice cream imparts a quality which cannot be obtained by any other treatment or by the addition of any particular ingredient. It keeps ice cream from becoming icy. It imparts lightness. It keeps the product from being too cold on the tongue. It improves palatability. This is identically the same property that has been deliberately sought by the public for use in various foodstuffs during many generations.

If bread were not made fluffy, it could scarcely be eaten. The use of baking powder or yeast in the baking of bread is to generate gas which makes the dough puff up, so to speak, and thereby imparts lightness to the bread. If the dough were not so puffed up (given an overrun), the baked product would be a hard dry chunk that could be eaten with difficulty and would not be at all palatable

In the shortening industry it has been the practice from time immemorial to beat air into lard when the latter is chilled from the rendering tanks. It is this very beating of the lard that makes it so white and fluffy. The air is in the form of minute bubbles which are uniformly distributed throughout the mass of the lard. If these air bubbles were not present, the lard would be a solid mass of yellowish grease.

EVERY housewife knows that the whipping of cream makes a great improvement in palatability. A high overrun is a rough measure of the quality of whipping cream. No one ever objects to the air in marshmallows. Marshmallows without air would be as impossible as candy without sugar.

In spite of the foregoing considerations the public is often told that the presence of overrun in ice cream is a fraudulent practice, permitting the sale of air at the price of ice cream. If this were the case, it would be to the manufacturer's advantage to pump in all the air that the mix would hold. But this is not done. Why? Because too much air is just as inimical to quality as is insufficient air. Too much air makes the product frothy and snowy in texture. If too little air is used the product will be too cold in the mouth, soggy in body, coarse in texture and generally unpalatable.

In order to satisfy the public that too much air is not sold as ice cream, numerous food control laws stipulate that a gallon of ice cream shall weigh no less than 4.5 lb. Since a gallon of average mix weighs about 9.1 lb., it follows that the minimum allowed weight provides for an overrun of about 100 per cent. The reason that this figure has been written in the food laws is because legislators recognize that this amount of air may be necessary.

EVEN in those sections of the country where there are no laws to limit overrun, competition between manufacturers determines an overrun limit from the simple fact that the public will not buy ice cream that does not taste right. The extent to which an overrun can be taken is largely determined by the quality of the ice cream mix. If the solids content is high, then a higher overrun can be taken than in the case where the solids content is low. Generally speaking, the higher the overrun, the greater is the concentration of foods solids in the mix. Roughly, the maximum overrun is about three times the total solids content of the mix. This is the limit for a quality product and the actual overrun should be well below this limit.

Obviously, the amount of air beaten into the ice cream mixture affects the cost of the finished ice cream. Since the beginning of the industry, wholesale and retail prices have been established on the basis of an ice cream with approximately 100 per cent overrun. Even though it were possible or desirable to whip little or no air into the mix the consumer would not benefit financially, as both the wholesale and retail price would have to be raised.

Pretzel "bending" is an art that has been speeded up through the use of conveyors to the point where each of these girls will "throw" from 900 to 1,200 per hour.

Gas-fired equipment, conveyors, and automatic control permit mass production of this increasingly popular bakery specialty.

Pretzel Making Modernized

WITH the return of beer, the once popular pretzel took a new lease on life. In fact, its consumption has grown to such proportions as to necessitate mass production with automatic machinery; mechanical, gas-fired bake ovens and other modern equipment.

One such plant that has recently been modernized and mechanized is that of the Lectonia Pretzel Co. of Lectonia, Ohio. About the only thing now done there by hand is "throwing" the pretzels and loading and unloading the conveyors. This plant is owned and operated by Conrad Berg, who has been in the pretzel business some 35 years and is today first vice-president of the American Association of Pretzel Manufacturers.

Dough from a mixer is placed in a machine which extrudes it in a long rodlike strip which is cut into pretzel lengths by a revolving knife. These strips drop onto a traveling belt conveyor. This conveyor is about 12 ft. long and 18 in. wide and has a 12-in. shelf on each side. Girls on both sides pick up the dough pieces as they travel along, "throw" them into pretzel shape and put the pretzels on boards. As the boards are filled they are transferred to racks suspended from an overhead chain conveyor along which they are moved to the oven. As many as twelve girls can work at the belt conveyor and they will "throw" from 900 to 1,200 pretzels each per hour. Any pieces of dough that they miss drop off the end of the belt onto another belt, to be returned to an elevator which discharges them into the extruder where they are extruded, cut and sent over the route again.

Pretzels entering the cooker in the foreground travel continuously through the bake oven at the rear and then, turning through 180 deg., pass through the dryer at the right.

The oven, which is equipped with a wire-mesh belt conveyor, is preceded by a cooker and salter, both automatic in operation, as is the oven, and the pretzels are carried through all three continuously and without interruption. The cooking is accomplished in a steel pan about 3 ft. long and approximately the width of the oven. A wire-mesh loop belt holds the pretzels down until they emerge from the pan and are discharged onto a series of $\frac{3}{4}$-in. rollers, set at an angle, and down which they roll onto the oven conveyor, which protrudes 2 to 3 ft. beyond the charging end of the oven. The cooking medium is a lye solution ($3\frac{1}{2}$ lb. of lye to 150 gal. of water) maintained at 210 deg. F. Cooking and baking changes this to bicarbonate of soda.

Salt sifts down onto the pretzels in mechanically

controlled volume, as they pass on the oven conveyor. This is accomplished with steel rollers, with longitudinal slots cut in them, rotating partly submerged in a box of salt. The salt is released continuously in a thin stream, which is spread across the conveyor by falling through a screen.

THE oven is 21 ft. long, 4 ft. wide and 3 ft. high, inside dimensions, and is built of sheet steel panels, fully insulated. The conveyor is motor driven like the others through a speed reducer. A single 1-hp. motor serves all. Heat is supplied by thirteen gas burners located in a long row above the conveyor, and seven burners located below. These are of the drilled pipe (slit) type and extend across the oven. A special baffle and flame spreader are provided to distribute the heat uniformly throughout the oven. These burners are interconnected along one side of the oven by two 1¼-in. manifolds and at the end of each manifold is a motor-operated valve wired to a heat controller.

With this system the temperature of the oven is automatically maintained at the correct point (535 to 580 deg. F.). The highest temperature is required in the upper portion of the oven, and any variation from these temperatures is made known at all times through two visual pyrometers.

Small pilot lights are interconnected by two ½-in. manifolds direct from the main gas supply. The baking period averages six minutes. Two motor driven fans and forced air ventilating systems, including interconnecting ducts, damper controls and accessories are employed.

The dryer is used to give the baked pretzels the characteristic crispness. The dryer, which is located alongside the oven, is of practically the same construction and is 21 ft. long, 9 ft. high and 3 ft. wide. The pretzels are discharged from the oven into shallow boxes and these are hung on the overhead chain conveyor which passes through the dryer. Heated air from the oven is distributed in the dryer through a system of ducts similar to the collecting systems in the oven. This gas-fired oven replaces one heated by coal fires. In addition to eliminating a large percentage of losses through burning, the gas oven bakes a better product while the fuel costs for the same volume of output have been cut in half.

WHEN the pretzels come out of the dryer they are put on benches where they are packaged for the trade. The overhead chain conveyors, mentioned in this article, are part of an interlocking system that serves the entire plant.

Reconditioning Iron Baking Pans and Trays

By H. G. FITZGERALD
Los Angeles, Calif.

AFTER considerable use, pans and trays used in baking buns, sweet goods, and breads lose their smooth surfacing and appear dirty, encrusted, and of irregular coloring. Such a condition gives irregular temperatures throughout the pan or tray, causes charred or burned crusts, and results in darkened sugar and grease adhering to the products being baked. These particles deface the products and give them the appearance of being baked in dirty pans even though in fact the pans may have been well wiped, cleaned, and greased between bakings. Much of the trouble is caused by the doughs adhering too closely to the metal, absorbing the grease film, and causing the too thin grease film to char and adhere to the goods being baked. Where the bare unsurfaced metal touches the dough the temperature is the highest, consequently the dough burns in these spots.

To remedy this condition it is well to wash the pans or trays with a hot solution of caustic soda, potash, or other proven commercial cleaning agent and to scrub them with a coarse brush. A wire brush is preferable for use around the edges if the trays have a wire beading and if an accumulation is apparent around and under the fold, roll, or edging. After the pans or trays are well cleaned and rubbed down with a piece of coarse cloth, they should be thoroughly dried, preferably in the oven. While the pans or trays are yet warm, but not too hot, they should be covered with a thick coating of pure rendered leaf lard previously melted in a kettle in sufficient quantity to cover the requirements. Allow the lard to cool or set. Then sprinkle over the greased surface a substantial coating of ordinary salt, taking care that the salt is evenly distributed over the surface of the pans or trays. Place them in the oven at a temperature of between 500 and 550 deg. F. and allow them to remain until the salt turns brown which will take about fifteen to twenty minutes. If left too long the salt will bake tight and necessitate considerable work in removing it. Before they cool enough to set the grease thoroughly remove the grease and remaining salt layer with a cloth.

To give the pans or trays a surface finish they should be greased lightly with the rendered leaf lard using a piece of cheese cloth or pad made from flour sack and put in the oven at a temperature of from 500 to 600 deg. F. (not lower than 500 deg. F.). At 550 deg. F. the pans or trays should remain at least 45 minutes to form a mottled appearance or finish. This finish acts as a base to receive the following treatment.

The pans or trays having been removed from the oven and allowed to cool are brushed with a heavy coat of the leaf lard using a flat grease brush. Be sure that the entire surface is covered uniformly. Then put them back in the oven at 550 to 600 deg. F. and allow them to remain at least three hours or until they have taken on the appearance of an enameled or well-tempered surface. If, however, they are still smoking and have the appearance of a brownish substance being formed on the surface they should be left until the smoking has ceased and the enamel finish is apparent.

The pans or trays are now ready for use in baking but as a precautionary measure leaf lard should be used in greasing the pans daily (wiped lightly every time they are used) for about three weeks until they are well broken in.

Asparagus Butts Made Useful

Dehydration at low temperatures results in a product suitable for edible purposes

By LLOYD A. HALL
Consulting Chemist, Chicago, Ill.

WASTE material from cut asparagus known to the canning trade as asparagus butts has never been considered suitable for use as an edible food. The fibrous matter of this substance, even when thoroughly cooked, was found difficult to masticate and digest and was not thought to contain sufficient valuable constituents to warrant a careful investigation of its possible use in the food industry.

Up to the present, the butts have aggregated 20 to 25 per cent of the total cut asparagus stalks. It can be readily appreciated that if definite commercial uses could be found for this material as an edible food, commensurate with its cost of preparation, the profits of the asparagus canning companies could be increased.

Dehydration of the butts offered a possibility of their commercial utilization. Atwater and Bryant (1) gives the analysis of asparagus as purchased as follows:

	(per cent)
Water	94.00
Protein	1.80
Fat	0.20
Crude Fibre	0.80
Ash	0.70
Total Carbohydrates	3.30
	100.80 sic

Calories per lb. = 105.

Osborn and Mendel (2) found green asparagus to be rich in vitamin B, the minimum daily requirement approximating 0.2 grams of the dry material equivalent to 2.2 grams of fresh. Sherman and Smith (3) state that stems such as asparagus and celery seem to be worthy of attention as regards anti-scorbutic value but they have not been studied to any extent. It is stated that 2 grams daily of raw asparagus afforded complete protection against scurvy but cooked asparagus was of little value. Crist and Dye (4) state that asparagus contains considerable quantities of vitamin A. It can be appreciated therefore that asparagus contains food constituents and food accessories that are valuable.

From a paper presented before the Division of Agriculture and Food Chemistry at the 89th meeting of American Chemical Society, New York, N. Y., April 22 to 26, 1935.

One of the important problems encountered was to sufficiently dehydrate the material without in any way injuring the valuable food constituents of the asparagus, and to preserve them so that the resultant product would maintain its food value for a considerable time.

In order to determine a suitable time and temperature to use in dehydrating asparagus, a series of tests were made as shown in the accompanying table.

The samples from these tests were ground in a small coffee mill and were found very easy to grind and were very stable against decomposition. The analyses from these last two tests were as follows:

	Test 6a (per cent)	Test 7a (per cent)
Protein	29.00	29.50
Fat	3.00	3.10
Carbohydrates	33.75	34.40
Crude Fibre	13.00	12.50
Moisture	10.00	9.50
Ash	11.25	11.00
	100.00	100.00

It was then found desirable to make further experiments on a semi-commercial scale. These tests were made in the following type apparatus: The oven was made of galvanized metal insulated with one inch of insulated wallboard consisting of a ceiling, wall, end and two doors but no floor. The equipment consisted of a multiblade centrifugal supply fan, one motor and drying fan, the necessary steam heating units, automatic temperature control and thermometer. Small trucks with rollers were used to hold removable trays built of wood with wire mesh bottom. The material was placed on these trays which were then put onto the trucks and run into the oven.

Test No. 1b: 100 lb. of wet butts were washed, then sliced into thin pieces and dried in the foregoing apparatus at 125 deg. F. for four hours. The loss on drying was 90 per cent. The product had a very good green color and excellent aroma and flavor.

Test No. 2b: 100 lbs. of wet butts were washed, then sliced and dried for three hours and 20 minutes at 135 deg. F. The loss in weight was 91.5 per cent. While this material had a very good color, the aroma and flavor were judged to be about 10 per cent weaker than the test No. 1b.

Test No. 3b: 100 lbs. of wet butts were washed, then sliced and dried at 150 deg. F. for three hours. The loss in weight was 91.7 per cent. The color was not quite as deep a green as in tests 1b and 2b. The flavor and the aroma were definitely weaker—determined to be about 20 per cent weaker than test No. 1b.

The dehydrated products from these three tests were separately ground in a pulverizing mill to about 40 to 50 mesh. To further ascertain the flavor strength and color of the results of these three semi-commercial tests, soup formulas were made of each of the dehydrated, ground batches as follows:

	(grams)
Dehydrated Asparagus Butts	55
Processed Corn Flour	30
Salt	10
Fine Ground White Pepper	1
Cane Sugar	4

These ingredients were well mixed together mechanically and ½ ounce of the mixture was heated with constant

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Dehydrating Tests on Wet Asparagus Butts Using Indirect Electric Heat, Except for Test 7A

Test No.	Amount Tested in Ounces	Time of Test Hours	Temp. deg. F.	Per Cent Loss in Weight	Color Dried Product	Flavor Dried Product	Remarks
1A	6	4	210 to 212	94.5	Dark brown	Slight taste of burnt sugar	Temperature evidently too high. Carbohydrates partly carbonized.
2A	6	4½	175 to 190	....	.....	.....	Results practically same as for Test 1A.
3A	6	4½	160 to 170	....	.....	Weak	No carbonization.
4A	6	5	140 to 150	....	Fairly good green color	Appreciable Asparagus flavor	Better product than Tests 1A, 2A, 3A.
5A	6	5	130 to 135	....	Good green color	Good asparagus flavor	Good aroma.
6A	6	5½	120 to 125	....	Good green color	Good asparagus flavor	Good aroma, best test of series 1A to 6A.
7A	6	5½	125	....	Good green color	Good asparagus flavor	Dried in steam oven. Superior product.

Interested in the trend toward higher quality? Then take a look at what Louis Burk, Inc., has been doing for years.

How to Put Quality Into Meats

By B. C. DICKINSON
Louis Burk, Inc., Philadelphia, Pa.

A clean plant being

IT'S practically sacriligious, this idea of grinding up a nice, juicy porterhouse steak to make sausage. But it's being done, and not by Oscar of the Waldorf, either. The crime is committed on a grand scale in the cause of quality at the specialty meat factory of Louis Burk, Inc. This Philadelphia packer takes pride in producing nothing but the best, and one of the ways of getting the best in sausage products is grinding up all the cuts of a carcass rather than using only the trimmings that can't be sold except in casings.

Production of quality products, and nothing else but, is the foundation on which the success of Burk has been built. It was this that created the demand which forced Louis Burk to expand from a retail to a wholesale business and then to establish his own packing plant. It is this that has counted for the success of Burk since Louis Burk founded the small retail butchery in 1881. That's all it could have been, for the company did little to push its products, until it took to advertising in more recent years.

But Burk has built its quality not alone by throwing choice cuts into the grinder. To begin with, the company buys the best in raw materials, paying one-half cent above the market for square-built, chunky, corn-fed livestock. And after a shipment of hogs has been unloaded at the swine hotel—pig-pens in plain English—the stock is allowed to rest and lose its nervous tension before it goes to the killing room. If the weather be hot—as it usually is in Philadelphia during the summer months—a cool shower for the animals is in order. All this helps to put the carcasses into the chilling room in the best possible condition.

Having made the essential start toward quality of acquiring good raw materials, Burk proceeds to carry this quality through to the finished products. This it does by various means, not least important of which is the employment of men who know meat and how to handle it. It is Burk's theory that every batch of raw material demands special attention and must be treated according to its individual properties, which seems good logic in view of the inherent resistance of hogs and beef to standardization. So the company goes in for personnel expert in the art of sausage making, men who have the ability to judge meat and to vary the formulas accordingly to get uniformity in quality. Burk claims that it operates a "glorified kitchen, with every man a chef." And to back this up it counts among its employees a great many skilled men, nearly all of whom are German-American meat experts, men who know the meat trade in all its aspects. These men are genuine craftsmen who learned their trade in Germany, where they did their "masterpiece." Done after three years of apprenticeship, a masterpiece involves starting with an animal on the hoof and going through all the steps of slaughtering, dressing and processing, alone and unassisted, under the close scrutiny of experts.

ANOTHER step taken by Burk to maintain the quality inherent in the good raw material is exceedingly strict sanitation, not only as to plant but to employees. Each of the 500 employees in the plant is hired because he has enough pride in himself and his work to keep clean. If he falls down in this respect, he fails to remain employed. All of the workmen wear uniforms, and clean ones, too. They change their uniforms not once a day, but several times during the day, depending on the particular task at which they are employed.

A clean plant and equipment are essential to quality in a meat processing plant, where the raw material carries with it not only refuse but bacteria. And Burk keeps its plant and equipment "clean," with a capital "K." Convincing evidence of this is the fact that there is no slaughterhouse smell about the place, even in the killing room. Contributing to this delightful condition is the practice of immediately flushing out the blood and removing the hair from the killing floor.

After each operation, both the plant and equipment are gone over with steam, water and brushes, with no sparing of the "elbow grease." The floors are washed continuously where operations are being carried on so that no refuse can collect at any time. And trisodium phosphate is employed to cut the grease. The accompanying illustration, which, by way, is not a posed picture but an actual plant scene, is visual evidence of the way workmen go after the dirt at Burk's.

It goes almost without saying that, in this quality plant, processes are controlled accurately as to time and temperature, with adequate use of indicating and recording instruments. But the control goes even further. Burk realizes that the temperature in a plant handling meat products ought to be kept down, and it has found that

essential to quality, Burk makes it a practice to clean up after every operation.

Products of combustion can't come in contact with the meat loaf made at Burk's. A solid wall separates the furnace from the baking compartment of the oven, and iron bars extending through the wall conduct the heat required for baking.

high humidity is a decidedly detrimental condition. So it keeps a close check on the "weather" in all departments, a regular routine being followed. Humidifiers and dehumidifiers are not employed in the plant, but when the humidity is found to be too high, the temperature is lowered to squeeze some of the moisture out of the atmosphere.

This Philadelphia meat house also employs special methods of processing to get better quality. In making sausage, it is the procedure to mix the various batches of meat in the curing room, meat in one truck being combined with that in another to obtain consistent uniformity. Another practice is to cure hams in barrels which lay on the floor in a horizontal position so that they may be rolled over periodically to turn the meat and insure thorough and uniform curing.

IT IS not enough to produce a finished product high in quality. The product must be delivered to the consumer in the same condition. And in the perishable food business, this means that it must be moved to the market without delay. Not that a little delay will go so far as to spoil the food, but it all too often knocks off that keen edge of quality which gives it a superior flavor and entices the consumer to buy more and pay more. So Burk makes it a practice to sell its products fresh. To do this it has to conduct its processing operations something after the manner of the baker. That is to say, it processes most of the sausage at night for delivery the next morning. Frankfurters are stuffed in the late afternoon, beginning about four o'clock. Then they are cooked and smoked that night, the smoking requiring only three and one-half hours.

Another idea which Burk has about retaining quality is to handle the meat as little as possible. It is for this reason that some of the products, ordinarily packaged by packers, are not packaged at Burk's.

Out of the same respect for the quick perishability of the finer gradations of quality, Burk refuses to follow the general practice of slicing bacon, having found that the sliced product dries out and loses some of its flavor. Neither does the company produce the skinless frankfurters, for, with no protecting casing, the meat loses some of its juicy delectability.

STILL another quality protecting policy which this packing house endorses, and one which should provide food for thought for all food manufacturers, is sparing use of strong seasonings. The management believes that the meat itself, top-notch grade that it is, has a better flavor than any concoction of spices or seasonings on the market, so it uses only the kind and amount of seasoning which will bring out the natural flavor in the meat. It will have none of this business of covering up the meat flavor with seasoning. That should be done only by packers who want to cover up lack of quality, is the attitude.

As most manufacturers know, there are many problems encountered in high-quality production which have nothing to do with obtaining and maintaining quality. There's always the question as to whether a satisfactory volume of business can be obtained in competition with manufacturers who reduce costs by cutting quality to sell at a low price. There are many arguments pro and con, but as for Burk, the management believes, and its experience has proved, that a good business can be built on high-quality at a fair price. Even during the depression, this company found no need to lower its standards.

BURK manufactures an extensive line of meats, including fresh and smoked cuts, fresh and smoked sausage products, puddings and other specialties. It promotes all of these on the basis of quality, hammering home the message to consumers with such slogans as "Fresh every day"; "The taste is there"; and "Everything is so clean at Burk's." Burk believes that the only way to sell food is to whet the appetite with good quality, and this idea is carried out not only through the product but through the advertising.

Bottlers of milk, beer, wine, cocoa drinks, and fruit beverages as well as of carbonated beverages have their troubles in mechanical washing of returned refillable bottles. Washing compounds must clean, sterilize, and give sparkle to bottle at a low cost and with minimum corrosion damage to machine. Claims made for some new compounds appearing on the market may not be warranted by performance.

Alkali Content Important Factor in Bottle-Washing Materials

By MAX LEVINE

In Charge A.B.C.B. Research Fellowship, Iowa State College, Ames, Iowa

WHAT constitutes a satisfactory detergent for bottle washing is one of the problems receiving considerable attention from members of the carbonated beverage and other industries in which refilling of returned bottles is feasible and economical.

Perhaps all will agree with me that a bottle washing compound possess the following qualities and properties:

1. Should thoroughly cleanse the bottle in a reasonable time.
2. Should have high germicidal properties.
3. Should be easily removable from the bottle; be "free rinsing."
4. Should be of reasonably low cost.
5. Should not be injurious to the washing machine nor interfere with its efficient operation.
6. Should be of such a nature that the bottler may determine the concentration of the effective ingredients quickly and easily.

Importance of these characteristics becomes apparent when one realizes that bottle cleaning is really a complicated operation consisting of a number of different actions taking place at approximately the same time.

Bottle washing compounds, as first employed, consisted of sodium hydroxide (caustic), sodium carbonate (soda ash), and trisodium phosphate. It was soon found that all of these alkalies did not have the same efficiency and that better results were obtained with compounds in which caustic was present than in those in which there was no caustic. Today the practically universal recommendation is that mechanical bottle washing compounds employ soda as a base to which other and milder alkalis may be added.

Relative efficiencies of different alkalies with respect to their ability to wet a surface, to emulsify grease and oils, to dissolve substances, to deflocculate dirt particles, and to exhibit germicidal powers have been reported in the literature and are summarized briefly in Table I.

This table shows that no one of the alkalies is superior for all the functions associated with the proper cleanings of a bottle. Caustic soda is the best germicide and most effective as a dissolving agent whereas silicates are somewhat better wetting and deflocculating agents than the other alkalies listed. When emulsification is considered, phosphate ranks first. Therefore, it might be expected that a mixture of these various alkalies would give best results. Experience has shown that with caustic soda as a base, the addition of one or more of the other listed alkalies is highly beneficial and desirable. Mixtures of caustic and carbonate have long been employed, the addition of phosphate has been practiced and silicates are now being introduced.

Washing compounds should not only clean the container but produce a bottle which, for practical purposes, is sterile. For this reason, germicidal properties of washing compounds are of considerable significance and have occupied the attention of the A.B.C.B. Research Laboratory for a number of years with the result that of various alkalies employed, sodium hydroxide is regarded as by far the most effective. Also, the addition of the milder alkalies (in themselves not very good germicides) was found to increase the germicidal effectiveness of the sodium hydroxide. This action is very important and significant for it is another factor of safety in bottle washing. Studies of the A.B.C.B. laboratories have also demonstrated that, as ordinarily used in bottle washing machines, a concentration of 3 per cent alkali, of which 60 per cent is caustic, used at a temperature of 130 deg. F., may be depended upon to produce a satisfactorily sterilized bottle for beverages.

CONSIDERING the relatively recent introduction of alkaline detergents, we must anticipate that the advances in chemistry and other sciences will result in new compounds which may have special merit for particular purposes in bottle washing. We should always be alert and open to suggestions and conviction as to the merits of new products; but we must, on the other hand, be careful to see that claims for new compounds are substantiated by dependable facts and that they are not based merely on opinion.

Among the newer compounds recently suggested are: sodium metasilicate, sodium hexa-metaphosphate, colloidal detergents, and standard alkali mixtures containing added germicides.

Of these, sodium metasilicate appears to be the most likely to find a place in mechanical bottle washing. This compound is not suggested as a substitute for caustic, but rather as an adjunct to caustic soda or to mixtures of caustic and phosphate or

Abstracted from paper read before special technological meeting of 17th annual convention of American Bottlers of Carbonated Beverages at Baltimore, Md., Nov. 20, 1935.

caustic and carbonate, which are now so commonly employed. It should be noted that silicates are colloidal in character.

Research investigations at Mellon Institute of Industrial Research have recently directed attention to the compound sodium-hexametaphosphate, which combines with the hardness constituents (calcium and magnesium ions) of water and prevents the "curdling" effect of soap. The compound has, therefore, been found helpful and useful in laundries and mechanical dishwashing. Whether it will be equally useful in mechanical bottle washing has not been adequately investigated, but calling attention to its existence and looking into its possibilities are worth while.

Although there have been many claims of superiority for colloidal detergents recently put on the market, there are, unfortunately, very few detailed comparative results. Starch and dextrins, have been the most frequently employed colloidal substances in these detergents. Usually these organic substances are added to sodium hydroxide or to a mixture of the hydroxide and carbonate or phosphate. In the presence of strong alkaline solutions and high temperatures used in mechanical bottle washing, these organic substances gradually undergo a change and lose their colloidal nature by decomposing into glucose. If the colloidal substances are of such considerable importance, as claimed, it is a serious handicap to the bottler that there is no way for him to know when the colloid has disintegrated and become merely glucose. In general the merits claimed for the presence of colloidal substances, particularly organic colloids, in bottle washing are very sorely in need of investigation and verification.

Addition of germicides to washing compounds in the soaker solution is frequently suggested. Chlorine and phenolic compounds have been suggested from time to time, but we are not inclined to favor their inclusion.

THERE are two objections to the addition of chlorine to a washing compound to sterilize as well as clean the bottles. Published reports of the A.B.C.B. have stated that chlorine added to a washing solution in the presence of organic materials removed from bottles, quickly deteriorates and loses its identity so that in as short time as fifteen minutes 300 ppm of chlorine, a very excessive quantity to have present, completely disappears. Therefore the first objection to the use of chlorine in the soaker solution is that it will not stay put but becomes merely an expensive and useless ingredient when employed at that particular point. The second objection is that when the alkalies which the A.B.C.B. has recommended are employed at the temperatures and the time specified, they themselves constitute adequate disinfecting agents and no additional sterilization is really necessary.

A compound which has come on the market recently contains phenol derivatives as germicidal agents. We have not, up to the present time, run comparative tests with this compound. We do feel that such a compound may have virtue for dish washing in the home but not at present in mechanical bottle washing as employed in the beverage industry. In the first place, as has already been stated, the germicidal properties of the washing compounds which are now employed are sufficient and adequate. Secondly, there is no simple test by which the bottler or his operator can determine when the added phenolic germicide has been used up.

New washing compounds, particularly new combinations of old compounds, are constantly coming on the market and are being offered to the bottler as a substitute for the alkali solutions now employed. The question arises as to how to evaluate and judge these compounds. Perhaps it would not be unreasonable to expect those who are offering them to be required to present dependable evidence of superiority or of greater economy which will result from their use, particularly since the compounds now on the market and commonly used give satisfactory results at a reasonably low cost. Unfortunately our experience has been that the claims put forth for some of these compounds have rarely been accompanied by any dependable and carefully obtained data; frequently some of the claims were quite unwarranted.

Several compounds claimed to be particularly effective because of certain colloidal or special combinations of ingredients were found to be relatively poor germicides. One of these compounds left bottles with an average of over 25,000 bacteria per bottle before rinsing. With another, which was somewhat better, it was found that 25 per cent of the bottles coming through the treatment contained over 1,000 bacteria per bottle as compared with less than 50, when the bottles were washed at the same temperature for the same length of time with the 3 per cent alkali of which 60 per cent was caustic.

FREE rinsing has always been an interesting though a debatable subject among those interested in the problems of bottle washing. There seem to be two schools of thought. One maintains that a bottle appearing clear and sparkling after rinsing is in itself evidence that all of the washing compound has been removed. Another argues that the very sparkling appearance may be due to the presence of a thin film of the particular compound on the bottle. The statement is frequently made that caustic soda does not rinse as freely as do the milder alkalies.

Unfortunately there are no actual facts upon which to base final and definite conclusions. As far as the bottler is concerned, it can be safely said that if the addition of a few drops of phenolphthalein to the bottle does not show a distinct red color, the bottle is free from alkali, and that he need have no worry on the "free rinsing" score. It is my personal opinion that when a bottler does have a red color develop in his bottles after washing and rinsing, the difficulty is far more likely to be clogged rinsing jets than poor rinsing properties of the washing compounds employed.

The proper determination of bottle washing cost is dependent upon obtaining data such as outlined later

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Table I—Summarized Relative Effectiveness of Various Alkalies Used in Bottle Washing

(Alkalies Listed From Top to Bottom to Indicate Their Relative Efficiency)

Wetting Power (Ability to make contact with surface to be cleaned)	Emulsifying Power (Ability to remove grease and oil)	Dissolving Power (Ability to remove syrup, acids, proteins)	Deflocculating Power (Ability to break up dirt particles)	Germicidal Power (Effectiveness in killing bacteria, yeasts, molds)
Silicate	Phosphate	Caustic	Silicate	Caustic
Caustic	Silicate	Silicate	Phosphate	Silicate
Phosphate	Carbonate	Carbonate	Caustic	Carbonate
Carbonate	Caustic	Phosphate	Carbonate	Phosphate

Certified Colors for Foods

Type of dye to use, depth of color to obtain, and precautions to take against "fading" are among the decisions to be made for best results in food and beverage coloring.

By J. R. HALL

Chemist, Warner-Jenkinson Co., St. Louis, Mo.

COLORING of foods is strictly a matter of experimentation to obtain the best results. But when the correct procedure is determined for one food it is well to realize that the conclusions reached can not be relied upon for coloring other foods without similar test experiments.

In money value, getting the correct color is only a small item in the cost of producing foods. Yet, the proper use, storage, and handling of food colors is a matter of much importance to those who want to produce the highest quality foods and who are willing to experiment to obtain the correct results.

In deciding upon the proper dye to use, it must be remembered that goods are most attractive when just enough dye is used. Too much color will deaden the shade and result in decreased attractiveness. For beverages, the amount of color specified is more than sufficient when viewed in a drinking glass, but it is not excessive when the beverage is viewed in a small bottle neck where the layer of liquid is quite thin.

For ice creams, the more delicate shades seem to be preferred. The use of one-half ounce of the standard color solutions described per 50 lb. of mix[1] is sufficient.

Fruit jellies and similar products require somewhat less color than beverages because jellies are usually viewed in a relatively massive bulk. One ounce of standard color is usually enough for 8 to 10 gal. of jelly. On this basis it is quite easy to calculate from the table the amount of dry dye needed per package of gelatin powder.

Soft candies, transparent or semi-transparent such as pectin or starch jellies, will require about the same quantity of dye as a beverage or possibly somewhat less according to the size and shape of the piece. A thick piece of candy will require less color than a thin piece. The main object is to make the candy as attractive as possible when viewed in bulk. The same principles apply to thin transparent hard candies, such as fruit tablets and the like.

A DIFFICULT problem arises in the coloring of the non-transparent coatings which are applied to candy. These can be best colored by dissolving a definite amount of the dye in heavy syrup and glucose mixtures and applying a measured quantity of the mixture to every 100-lb. of centers. Numerous examples of the use of too much color in candy have been observed. A good candy maker uses just the right amount of dye, because he knows that too much color is less desirable than too little. Erythrosine has been used in such generous quantity to give deep red coatings that the candies tasted strongly of iodine. For this reason Erythrosine should never be used to produce deep tints. If deep red colorings are needed they should be obtained by using Ponceau 3R or Ponceau SX in conjunction with Amaranth. Amaranth is free from any taste or odor and may be applied generously. Also, Ponceau SX and Amaranth complement each other so well that any desired shade of red can be obtained by using the correct proportions of each.

"Fading" of colors ofttimes is a puzzling problem. One of the most common causes of fading in foods colored with azo dyes, such as Amaranth, Ponceau 3R, Ponceau SX, Orange I, and Sunset Yellow is the presence of tin dissolved from tin-lined containers or tin-lined vessels used in the manufacturing process. Colored fruit preserves, for example, packed in glass containers having unprotected tincoated closures sooner or later lose their color. This fading may often be plainly seen in clear jellies as it progresses slowly downward from the top of the container as the dissolved tin diffuses through the jelly. The remedy is elimination of the source of the tin. Lacquer coating on the metal cannot be depended upon because the tin is not always fully protected. Triphenylmethane dyes, such as Fast Green, Light Green, Guinea Green B and Brilliant Blue, are less susceptible than the azo dyes to tin reduction. Consequently a fruit preserve colored purple with a mixture of Amaranth and Fast Green will invariably, in a short time, lose the Amaranth and become green. The green may also disappear in time.

Sulphurous acid and sulphites do not decolorize the azo dyes, but in the presence of metals, such as zinc, sulphurous acid is converted into hydrosulphurous acid, which causes rapid decolorization. Fading of Amaranth and the other azo dyes occurs occasionally in soda water. The presence of reducing bacteria is usually suspected as the cause. Since this indicates that the water used is contaminated in some way, the obvious remedy is the use of another water supply.

Light Green and Guinea Green B are subject to a peculiar form of fading for which no explanation has been found. It occurs in soda water, acidified with citric or tartaric acid or in plain water with either citric, tartaric or acetic acid, but not in sterile, distilled water or in tap water containing sodium bitartrate or sodium acid citrate. Citric or tartaric acid must not be used in solutions containing either Erythrosine or Orange

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[1] *Food Industries*, November 1935, page 546, Table II.

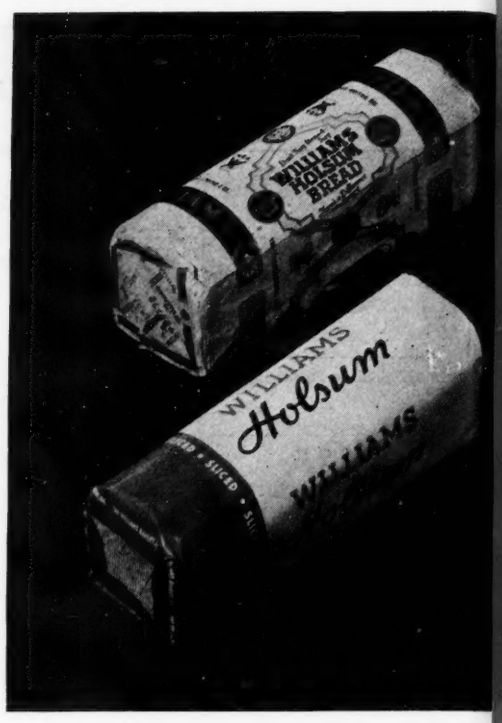
Uses and Other Properties of Primary Colors

Name of Dye	Color Powder	Color Water Solution	Color Acid Solution	Color Alkaline Solution	How Used
Brilliant Blue F. C. F.	dark purple bronze	greenish blue	yellow in strong acid	greenish blue in cold	Straight as a blue with Amaranth for purple shades; with Erythrosine for purples, mauves or violets for candy; with Tartrazine for green shades.
Indigo Sodium Disulfonate	blue, brown or red brown	blue but fades			Not recommended for foods. Brilliant Blue F. C. F. preferred.
Fast Green F. C. F.	greenish bronze	bluish green	green	red to violet	Straight as a green with blue cast; ⅓ and ⅔ with Tartrazine for deep green. Higher ratio of Tartrazine for lighter greens. Widely in candy, ice cream, beverages.
Guinea Green B.	dull green	green	greenish blue		In confectionery and ice creams. Not recommended for beverages; colors foam greenish blue.
Light Green S. F. Yellowish	dull green	green	green but fades	green but fades	Straight or mixed with Tartrazine for confectionery, green cherries. Easily destroyed by heat. Cream of tartar stabilizes solution color.
Orange I.	brownish red	orange but fades, sediment	orange	red orange	Only for weakly acid or neutral foods; not recommended for beverages or ice creams. With Ponceau 3R or Amaranth for sausage casings.
Amaranth	reddish brown	magenta red or wine red	dark red in conc. solution, bright red upon dilution		As a red in confectionery, ice cream and soda water. Also with Ponceau 3R or Ponceau SX.
Erythrosine	reddish	pinkish orange redder with dilution	precipitated out		In candies for rose and pink shades. Cannot be used in acid foods or beverages.
Ponceau 3R	bright red	reddish orange redder on dilution	red		Coloring fountain cherries and candies. In coating for red jelly beans. With Amaranth for variety of red shades. With Tartrazine or sunset yellow for bright orange shades.
Ponceau SX	red	reddish orange			Straight as brilliant light red of fountain cherries. With Amaranth for deep red in candies; tasteless and odorless coatings for jelly beans. With Tartrazine or Sunset Yellow for brilliant orange shades in beverages.
Naphthol Yellow S.	bright yellow	yellow			Not widely used in foods; gives bitter taste with acids and insoluble salts with hard waters.
Sunset Yellow F. C. F.	reddish yellow	yellow orange		orange red	Straight in beverages and candy for light yellow-orange. With Ponceau SX for brilliant red-orange shades. With Tartrazine for cream and egg yellows.
Tartrazine	yellow orange	greenish yellow			Straight in confectionery, soda water, and ice cream for lemon yellow with Sunset Yellow, Ponceau SX or Amaranth for cream to egg yellow, golden orange, and orange.
Yellow AB	orange yellow	insoluble	insoluble		Oil soluble for coloring butter, oleomargarine, and "summer coatings" for candies.
Yellow O. B.	deeper orange yellow	insoluble	insoluble		Oil soluble for coloring butter and oleomargarine when yellow-orange is wanted. With Yellow AB for standard butter color.

Williams Bakery, Inc., adopts an artist-designed wrapper for its bread which embodies the elements considered essential to a well-chosen family line of packages. Initial results indicate departure from traditional wrapper to be a smart merchandising idea.

Streamlined Packages

By H. E. TAYLOR
W. E. Long Company,
Chicago, Ill.



WITH an increase of 6 to 125 per cent in sales for its various variety loaves Williams Bakery, Inc., has within the past few months applied the principles of streamlining to the packaging of bread wholesaled from its Scranton, Wilkes Barre and Newburgh plants.

Such results remove all doubt as to the advisability of such a move on the part of the company. A pertinent question arises as to how the streamlining of bread is obtained.

In bread packaging streamlining can hardly mean Zeppelin or teardrop shape for the product. While the baker might desire it, a radical change in the shape of his loaves to conform to such designs is out of the question; at least for the present. Bake-shop equipment and high speed production schedules are geared to fashion loaves of box-like appearance.

Also bread is one of the most difficult of all grocery store items to package attractively. Its package cannot be rigid. This peculiarity is a condition that puts the package designer face to face with trouble. Consequently the practice has been more to wrap bread for identification and protection purposes than to package it in an endeavor to attract customer interest convertible into purchases.

Definitions for the lately much used term "streamline" are almost as numerous as the individuals who have attempted to define it. For the purpose of those interested in the application of its principles to commodities for making profit, we advance a definition which we think is explanatory; at least sufficiently so to serve as basis from which to discuss streamlining. Our definition is:

"Streamlining a commodity is to relieve it of all non-essential decorative encumbrances to speed up and strengthen its identification by consumers, to increase its effectiveness and to decrease its sales resistance."

To obtain the benefits of streamline design from its bread packages the Williams Bakery, Inc., had its five major wrappers redesigned. Williams "Holsum White," "Wheat," "Jumbo," "Square Deal," and "Hi-Land" breads all had their faces lifted. Every distracting line and irrelevant bit of design was replaced by broad areas of white space and of color, upon which a minimum of lettering was placed. Care was taken that this lettering was of a plain, readable style and that the only tie-up with the old wrapper was found in the word "Williams." It seemed logical to assume that the housewife would appreciate quick identification and that fancy bits of design and time-worn slogans were no longer effective at the bread display counter.

Maximum attention was focused on the variety name by carrying it alone in a second color. For instance, on the Wheat bread wrapper "Wheat" appears in black script, while "Williams" above it and the solid color end are in brown. This procedure tended to spot-light the variety name and make quick and easy reading possible for the housewife.

Extreme care was taken to have the design printed on a sparkling white paper stock—two-thirds of each package background is white—to have background area appear the least bit muddy or transparent would have greatly deadened its effect.

ALSO it was fully realized that to take the bread out of the class of wrapped foods and place it up in the package group, caution had to be exercised in the operation of wrapping by the high speed machines. A certain degree of the "Streamline" package success lay in its simplicity and contrast of color and line. For this reason no cripples such as loosely wrapped, wrinkled, or partly opened packages were allowed to leave the plant. Every package had to appear firm and smooth. This practice had a surprisingly good effect on the salesmen's attitude towards the product. Each package received care of which even the grocer became conscious as salesmen serviced the stores.

The streamline idea did not stop with the bread package itself. To

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The streamline principle of bread wrapper design for which patents are pending, was created by the W. E. Long Co. Its use is reserved exclusively for the company's clients. The idea is here presented to illustrate what can be accomplished by intelligent thought on the subject of modern package design.

hold public interest, the Williams Bakery, Inc., also streamlined its trucks. Although the exact wrapper design motif was not applied, the style of lettering and simplicity were strictly observed. Also the color scheme on the trucks varied as it did on the packages and gave a strong family resemblance among the trucks, as well as the bread packages. A red truck with a white band and black lettering would appear on a certain route. Next morning the salesman would drive to the grocery store in a truck displaying a green body with a white band and black lettering. Constant rotation of these different colored trucks kept grocers, consumers, and even children more conscious of Williams bread than they had ever been.

What the Williams Bakery, Inc., has done is only one case in point, for when a prominent package designer hit upon the "streamline" bread wrapper most bakers who saw it were convinced that for the first time since bread wrapping began the package was given a business-getting design. They regarded the design to be one which would permit bread to keep up with its well-dressed, rigid packaged competitors whose producers during the past few years have been getting more and more of the consumer dollar while the bakers fought for what was left.

Before a start was made on the actual designing of the streamlined bread package an analysis was made of representative 1933 bread wrappers. This survey was like rummaging through a dusty old trunk in the attic. We met with moldy adaptations of original trade-marks and design motifs, all popular when the Gibson Girl was number one attraction and with slogans as appropriate and readable as that scrolled motto, "Home Sweet Home." Also the ends of the wrapped loaves were usually plastered with any odd bits of irrelevant design that might be handy.

IN contrast the design of package hit upon as represented by that adopted by the Williams Bakery, Inc., is startling in its simplicity. Solid color covers one end of each package for about one-third the loaf's length; this color varies with the variety of loaf. The remaining two-thirds of the package is white on which the brand name and the variety designation of the bread appears in black with the latter being the dominant.

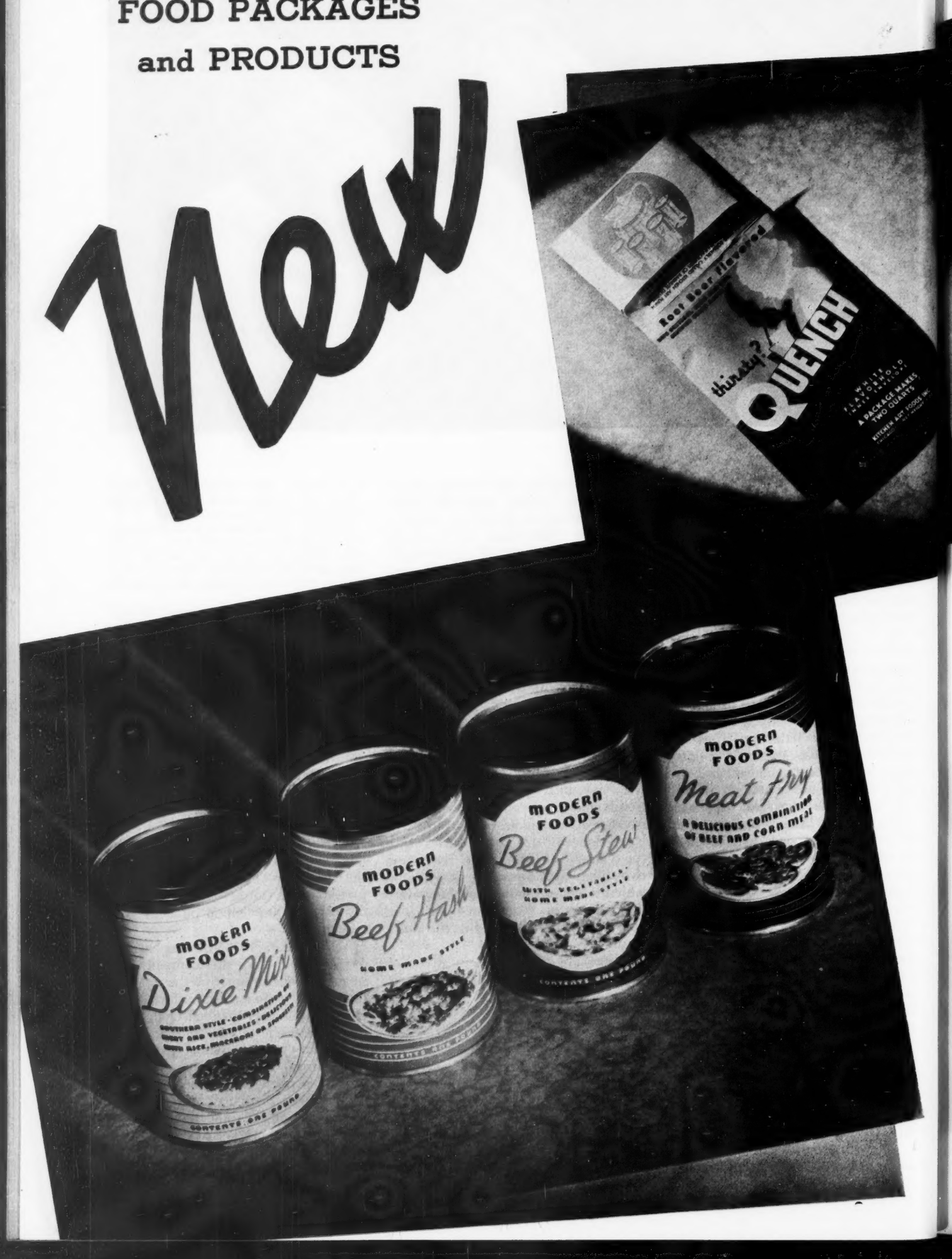
There are five points in favor of packaging bread in this simple yet distinctive manner.

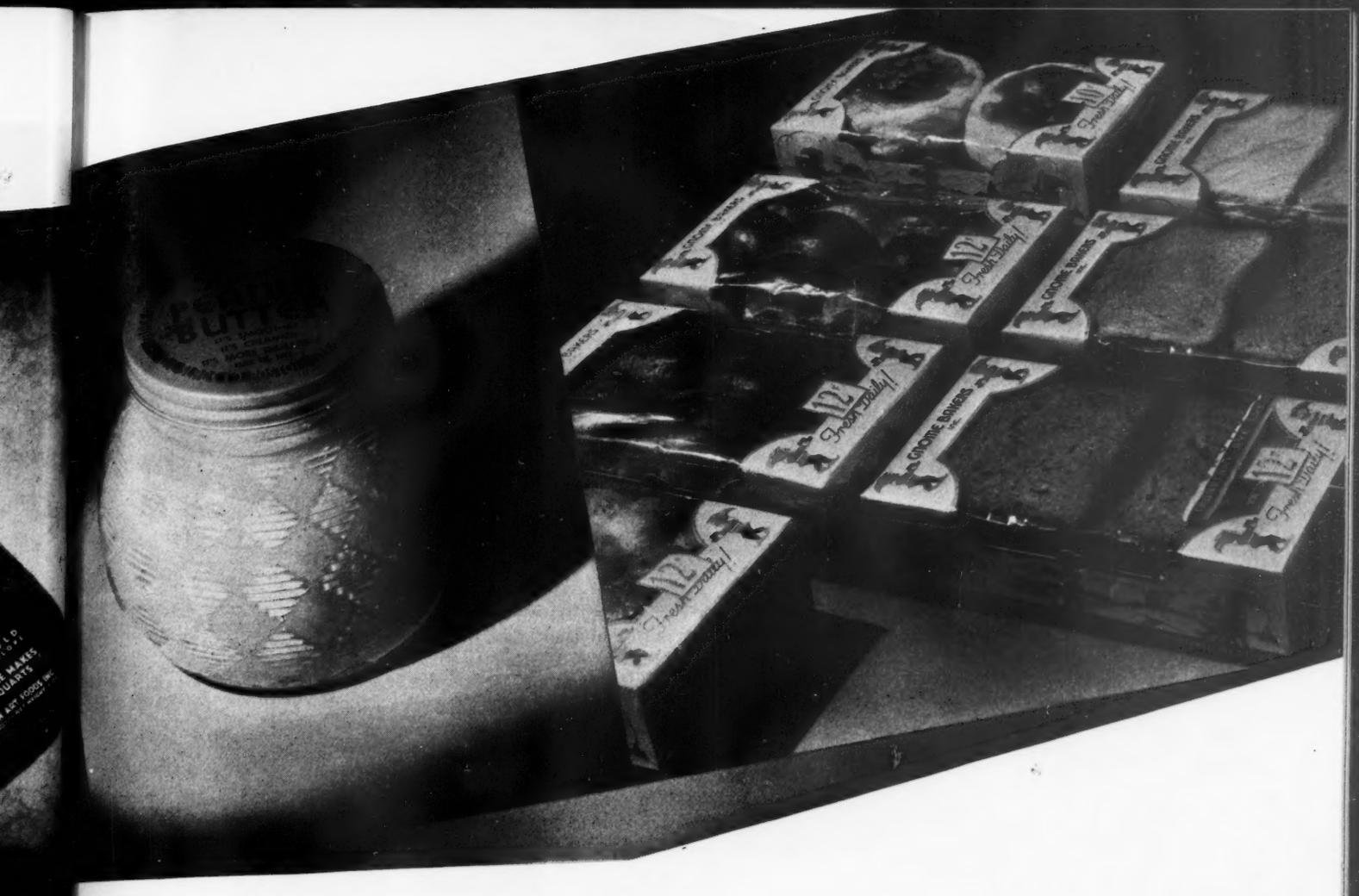
1. Brand identification is brought out large and strengthened through elimination of non-essential decoration.
2. Identification is made easier and quicker because of the simpler and stronger color scheme combined with the dominant and more readable brand name lettered in characteristic style.
3. Distinctiveness of package gives rise to a stronger sales interest because it receives more respect and attention from the grocer as well as from the customer.
4. Family resemblance is obtained through use of one dominant design motif with the color scheme varying for each variety. The large plain masses of color afford excellent backgrounds to give contrast for the variety name.
5. Wrapper costs are reduced through simplification of design which lowers plate costs and through elimination of extra expense for occasional four and five-color wrappers; two or three colors at most are all the simplified designs need.

In the instance of the Williams Bakery, Inc., the morale of the sales force was greatly improved because it had a new idea to sell and because advantage was taken of the opportunity to convince the sales force that the company was not only leaders in volume of business in its markets but also in the introduction of new methods of preparing its products for the market. Also, the company impressed this latter point upon its dealers and the general public.

THE grocers' response was entirely favorable and the company received a cooperation from the retailers that is not common these days. Unexpected publicity resulted from arguments between people on the streets concerning the wisdom of extending streamlining to such a commodity as bread. Housewises and business men of the cities broached the subject to the bakery officials and discussed the merits of the unusual package.

FOOD PACKAGES and PRODUCTS





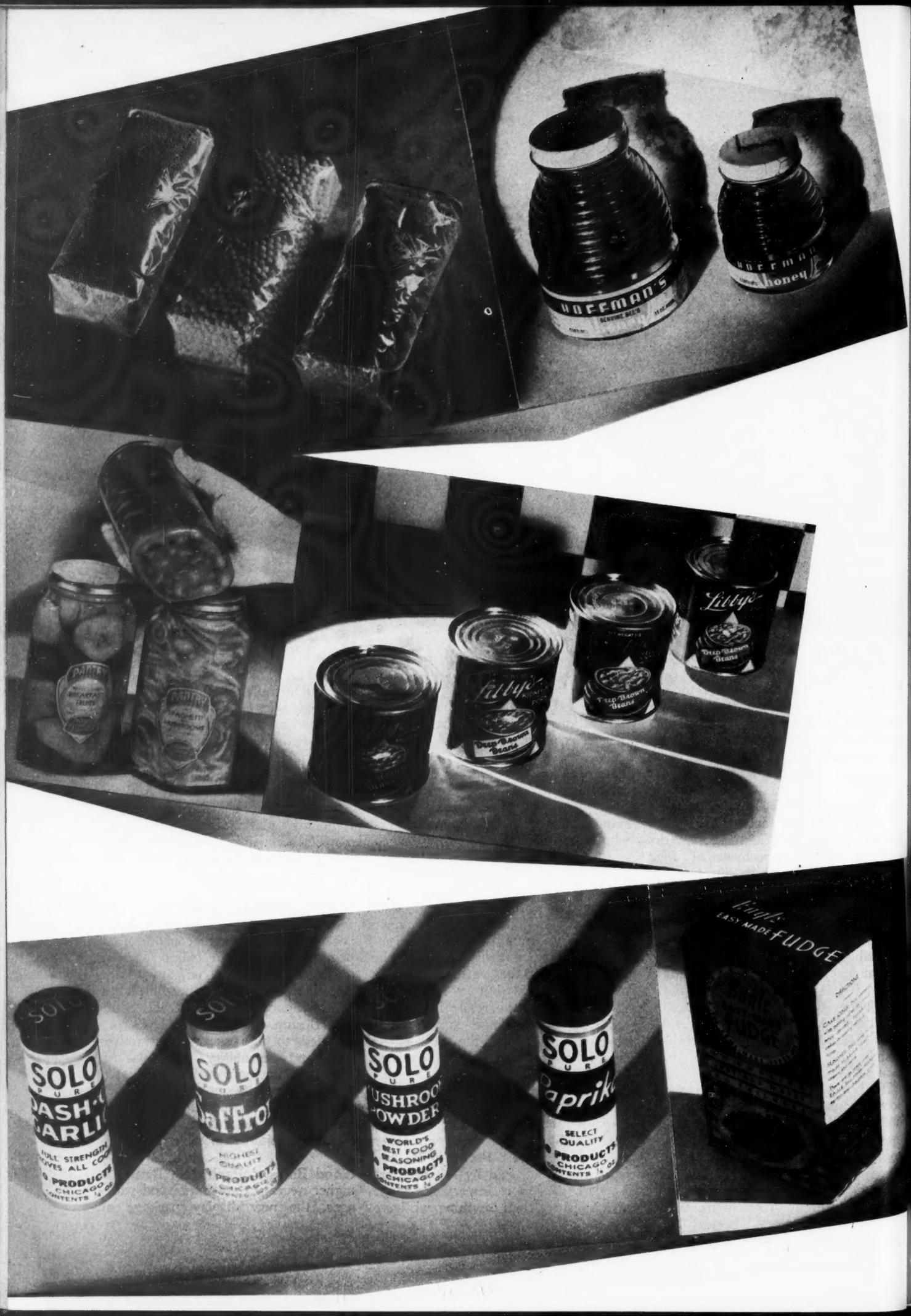
Four Meat Products. As though inspired by the good work of that depression antidote, Federal Surplus Relief Corp., canners are supplying the hungry populace with an ever-increasing volume of canned meat products. And this is not counting the amazing pick-up in the business of dog food manufacturers. If you haven't yet guessed it, these remarks preface the announcement of four new meat comestibles in tins by Modern Foods, Chicago. The family of four includes: "Dixie Mix," Southern style, a specially prepared combination of ground meat, fresh vegetables, beans and rich gravy; "Meat Fry," an appetizing combination of fresh meat and corn meal, which sounds something like scrapple; "Beef Hash," home-made style; and "Beef Stew," with vegetables, home-made style. All are in 1-lb. cans.

That these products are modern foods is proclaimed by the labels, in no uncertain terms, not in words but in artistic conception. Having the common basic design of three heavy color bands and a series of closely-spaced hair-lines in contrasting colors, the different products are differentiated by yellow, red, green and brown. Each label carries colored illustrations of a dish prepared from the can's contents.

Technically Superior. There is something refreshing about a package of "Quench," not alone for the consumer but for food manufacturers who worry about packages. Quench is a soft-drink powder in six flavors —orange, sweet lime, root beer, imitation strawberry, cherry and grape— produced by Kitchen Art Foods, Inc., Chicago. It is distributed in a paper envelope decorated by effective artistry and spot-varnished over the printing with the varnish running over the edges but not covering the flaps. But the really interesting part of the package is an inner envelope in which the powder is sealed, and which, in turn, is sealed in the decorated envelope. Descriptively designated "Flavorhold" the inner envelope is of laminated structure, comprising an outer sheet of white sulphite paper and an inner sheet of glassine. Between the two is a white gum, said by Kitchen Art Foods to be "more impervious to oil and moisture than anything we have previously found." Before this new patented sheet was developed there was used as a beverage-powder container two sheets of kraft laminated with asphalt. Naturally, brown or gray kraft is not as attractive with foods as a white material. And the asphalt, showing black at the edges, is not as satisfactory as white gum. Furthermore, it is less impervious to oils, according to a Kitchen Art executive.

Sales Say It's Effective. "It is perfectly evident from our sales that the package has met with consumer approval." This is the tribute paid by an executive of the company to the effectiveness of the peanut-butter jar recently adopted by D. & L. Slade Co., Boston. Two factors have contributed to this success—attractiveness and reusability. Globular in shape and having a surface checkered with squares of smooth and ribbed glass, the jar carries no label other than that on the closure, a condition making it suitable for table use.

Good Bakers' Package. Batting a higher average than most food packages, the new display package of


HOFFMAN'S
honey
Libby's
Deep Brown Beans
SOLO
SOLO
SOLO
SOLO
Paprika
SELECT QUALITY
PRODUCTS
CHICAGO
Fudge
EASY MADE FUDGE

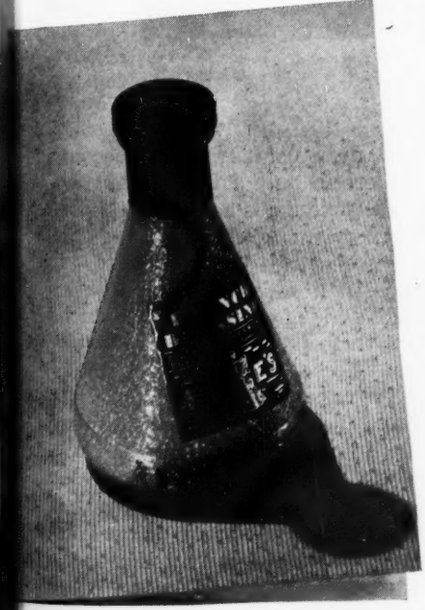
FOOD PACKAGES and PRODUCTS

Gnome Bakers, Inc., New York, accomplishes two important missions. It not only puts its contents in the consumer's line of vision, but it prominently displays the manufacturer's name, trademark and "fresh daily" slogan. Nor is it modest in exposing the product to the public eye, for it shows not merely the top but also a portion of the sides of the muffins, rolls, breads and what not.

The new baked goods container comprises a carton with the greater portion of the top and a section of the sides cut away, the opening being covered by transparent cellulose which enshrouds the entire package.

Red, Green, Yellow Tapioca. Tapioca's value to the cook who likes to set a splashy dinner—as to color—has been greatly enhanced, and the product has been made more appetizing for those whose taste runs to warm hues. All this has been brought to pass by coloring the tapioca red, green and yellow. Packaged in transparent cellulose bags with only a small neat label to cut off the view, the product also profits by its color through increased sales appeal.

Heretofore, colored tapioca was taboo in this country, although used in Europe, because government regulations specify that only American coloring can be used. This prohibits the importation from Java of tapioca which has been treated with the usual German colors. And coloring the product after it arrived here does not do the job satisfactorily because the resultant product is streaky after cooking. So Sprague, Warner & Co., Chicago, arranged to ship the coloring to Java for mixing into the raw paste.



Honey in a "Hive." Having selected from a couple of hundred honeys on the market a special blend calculated to please the consumer as to taste and color, Honey Packers, Inc., New York, went about creating a package to distinguish this product from its competitors. The desired result would seem to have been achieved, as evidenced by the photograph. To get this effect, the company took the popular bee skep glass jar, set it on a special base and crowned it with a special cap. Of smooth glass, the base is completely encircled by a colorful red, blue and yellow label. The cap, a screw-type metal closure, is cleverly lettered to read "honey" any way you look at it.

It Looks Large. Giving the appearance of size to a package has its value to the manufacturer (Mr. Schlink please note). And the new glass jar put into service by Standard Mushroom Co., Pomeroy, Pa., has this attribute, together with others that will tend to make it a successful package. Taking roughly the shape of a diamond in cross-section, the container naturally looks broad from the front. Being of glass it shows off its contents for eye appeal. Then, too, it has an attractive reclosing metal cap, together with a wide mouth and an interestingly designed label of small proportions.

Something New in Beans. It's a smart research department that can develop a new and better way of processing a food as old and as widely consumed as the prosaic bean. This bouquet goes to the personnel who delve into the chemical and physical mysteries of foods at Libby, McNeill & Libby, Chicago. This company just introduced to the national market a deep-brown bean which has met with distinct success in the test territory of Chicago. This product is cooked in oil or fat at a temperature of about 240 deg.

Libby packs these deep-brown beans in tin cans in four combinations. There are, by way of being specific, deep-brown beans with pork and molasses; with pork and tomato sauce; with tomato sauce and no meat; and red kidney beans with pork.

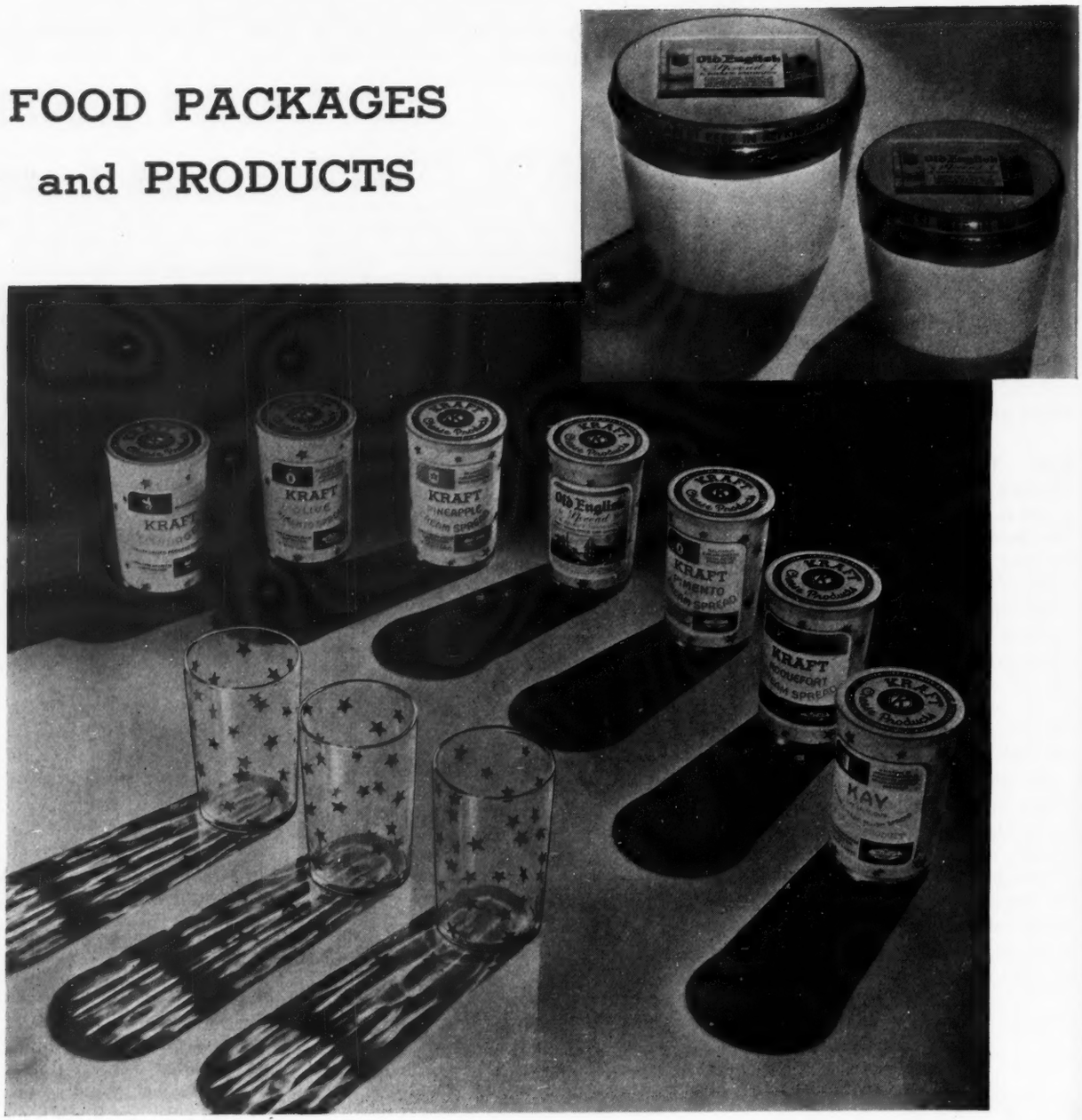
Not New — Different. Having adopted for its French dressing the stippled glass container which was proven popular for this type of product, Hedge's Wigwam, Royal Oak, Mich., went a little further to make it's package distinctive. Encircling the wide base of this bottle is a translucent band with the tradename and trademark printed on it. Also contributing to the attractiveness of the package are a dark label, dark neckband and dark, smooth closure.

Add Water—Get Fudge. Always eager to contribute to the social uplift of society by emancipating the housewife, food manufacturers have been quick to develop and market ready-prepared food mixtures. Latest among these is fudge mix. One of the first manufacturers to offer this product is Eagle Manufacturing Co., Memphis, Tenn. Labeled "Eagle Easy-Made Fudge," this preparation contains cocoa, milk, sugar and vanilla, and it can be converted to a confection by mixing with a small amount of boiling water and chilling in the refrigerator. Put up in 1-lb. cartons of modernistic design, the mixture is protected against moisture and prevented from sifting by an inner bag made of dry-waxed glassine.

Tin Vials for Seasonings. Miniature tin containers are something rather rare in the field of food packaging, which is one, though not the most important reason for this story about the new package of Sokol & Co., Chicago. Standing a mere $2\frac{1}{4}$ in. high and measuring $\frac{3}{4}$ in. about the hips, this package serves four products: garlic powder, paprica, dried mushroom powder and saffron. Attractively lithographed in three colors, the tins for the four have a common basic design to show that they are of one family. Three of them contain $\frac{1}{4}$ oz., while the one for saffron carries a mere 1/40th of an oz. The saffron, however, is put up in a waxed paper bag which is rolled up and inserted in the tin. The tins have a slip-over cap, and all except the one for saffron have a wax seal over the bottom to prevent sifting and keep out moisture. For display purposes, each of these items is mounted in multiple on a decorative card with colors conforming to those of the tin vial.

There is a bit of a product story behind these packages, too. Fresh garlic cloves formerly were packed in transparent cellulose bags, and there

FOOD PACKAGES and PRODUCTS



was a tendency to spoilage, according to Sokol. So the garlic was prepared in powder form and packed in a glass tube, which tube has been succeeded by the tin vial.

Star Cheese Tumblers. Many package-minded food people probably have been wondering whether the "Swankyswig" glass containers of Kraft-Phenix Cheese Corp., Chicago, would wane in popularity after housewives had become stocked up. Unfortunately for the cause of curiosity, but fortunately for Kraft, they won't find out, at least not just yet, for the company has changed the design of these packages to rejuvenate interest. In the new design, bright-colored stars of glass-pigment are applied and fired on fluted glass. All the stars on a glass are of one color, but there are four different hues—red, blue, green and black—for variety. All four of the color-starred glasses are packed in each case, and each of the cheese spreads is packed in all of the different glasses.

Aside from the planetarium effect, the new Swankyswigs are slightly modified as to shape, being taller than their predecessors and having a slight taper to permit stacking.

There is quite a success story back of the original Swankyswig glasses. Appearing on the market in the fall of 1933, these containers had become best sellers in only a few weeks, and today the package is a "staple" in virtually every market.

Cheese in a Crock. They'll keep buying "Old English" cheese spread to get them. That's what Kraft-Phenix Cheese Corp., Chicago, thinks about the casserolettes to which it has entrusted the mission of carrying that product to consumers. And there are those who will agree with the cheese barons, as you perhaps will after a squint at the camera copy of the container. A quaint, fireglazed pottery crock of soft amber yellow, the container bespeaks quality in its contents.

PROMOTING *the Product . . .*

ROVING BILLBOARD

Two functions are served by the semi-trailer recently put on the Chicago-Milwaukee run by Pie Bakeries, Inc. Aside from transporting "Mrs. Wagner's Pies," it does an effective job of advertising. The body of the trailer is of "hammered" aluminum, while the letters in the name and the borders of the illustrations are cast in copper. A finishing touch is put on with varnish.

▶ WHEAT FLOUR INSTITUTE, Chicago, will furnish to groceries and bakeries throughout the country display cards promoting consumption of wheat flour and bread.

▶ INTERNATIONAL ASSOCIATION OF ICE CREAM MANUFACTURERS, through its merchandising institute, has prepared a valuable advertising aid in the form of a 38-page catalog of ice cream ads and displays.

▶ OYSTER INSTITUTE OF NORTH AMERICA has invited the food editors of magazines, newspapers and syndicate services to compete in an oyster-recipe contest. The winner gets a thirteen-day trip to Bermuda.

▶ BRAZIL NUT ASSOCIATION added holiday power to its successful advertising program in the form of large advertisements in the newspapers of 24 cities. The effective advertising done by this organization made 1935 its best selling year in history.

▶ ASSOCIATED SALMON PACKERS has available a fund of $200,000 for a three-year advertising campaign.

▶ WISCONSIN'S department of agriculture and markets has devised a plan for marking quality food products shipped out of the state with a state brand and seal of approval. Butter, eggs, potatoes, cheese, honey, fruit, maple syrup and other products will be so branded.

▶ NORWEGIAN SARDINE CANNER'S ASSOCIATION is conducting an advertising campaign in the newspapers in seventeen cities throughout the country, with 30 papers on the schedule.

▶ CERTIFIED MILK PRODUCERS' ASSOCIATION OF AMERICA, INC., will conduct a national campaign this year to boost certified milk, both pasteurized and unpasteurized. Dr. James A. Tobey, Borden Co., New York, will direct the campaign.

▶ BUREAU OF COFFEE INFORMATION is distributing to 80,000 schools a booklet entitled "The Story of Coffee."

▶ CALIFORNIA PACKING CORP. will launch this month a nation-wide campaign on "Del Monte" pineapple juice. Ads will be carried in outstanding national magazines and Sunday newspapers. Street car cards are to be used in selected markets. Large human interest photos will feature the ads.

▶ BLATZ BREWING CO., Milwaukee, has adopted a cap-sealed tin can for both beer and ale, continuing distribution in bottles at the same time. This company also brewdates its "Old Heidelberg" as a promotional measure.

▶ CHARLES B. KNOX GELATINE CO., Johnstown, N. Y., is conducting in the East a newspaper campaign to promote "Knox Jell." Starting in Philadelphia and Camden, the campaign will extend to other markets as distribution is completed. "Fruit-Sealed" flavor is the copy theme.

▶ PHILLIPS PACKING CO., INC., Cambridge, Mass., has launched a national campaign in *Time*. To put the trade on the lookout for this new drive, Phillips sent out by direct mail real watches sealed in tomato-juice cans. Mailing pieces with the slogan, "It's the Watch to Watch for *Time*," preceded the timepiece.

▶ WARD BAKING CO., New York, launched last month a network radio program, "Parade of Youth." It is a Tuesday, Thursday and Saturday-evening broadcast.

▶ GENERAL MILLS, INC., Minneapolis, will open on Jan. 13 a specialty bread school in Buffalo.

▶ CLICQUOT CLUB has just started a new series of programs over a radio network. The Clicquot Club Eskimos have been on the air for eight consecutive years.

▶ JOHN MORRELL & CO., Ottumwa, Ia., has been conducting test campaigns on "Prido," a new shortening, in Chicago, Philadelphia, Minneapolis and St. Paul, using newspapers and radio. This month copy will appear in two national women's magazines and four trade publications.

▶ GENERAL BAKING CO. is the sponsor of a juvenile radio drama series, "Adventures of Terry and Ted," heard over a network Mondays through Fridays from 5 to 5:15 p.m., E. S. T.

▶ SNELGROVE ICE CREAM CO., Salt Lake City, Utah, obtained newspaper publicity by shipping via air express ice cream for the Warm Springs Thanksgiving dinner of the President.

▶ HULBERT'S FRUIT PRODUCTS, INC., New York, went on the air Dec. 6 with the program, "Allie Lowe Miles Club."

▶ CAMPBELL SOUP CO. did some timely radio advertising Christmas Day with a nation-wide program in which Lionel Barrymore performed as Scrooge in "Christmas Carol."

▶ NATIONAL DAIRY UNION is distributing a new booklet, "Eat More Butter," which summarizes scientific studies in vitamin nutrition.

▶ LAND O'LAKES CREAMERY CO., Fondu Lac, Wis., intends to put a drive behind its cheese packed in the vented tin cans.

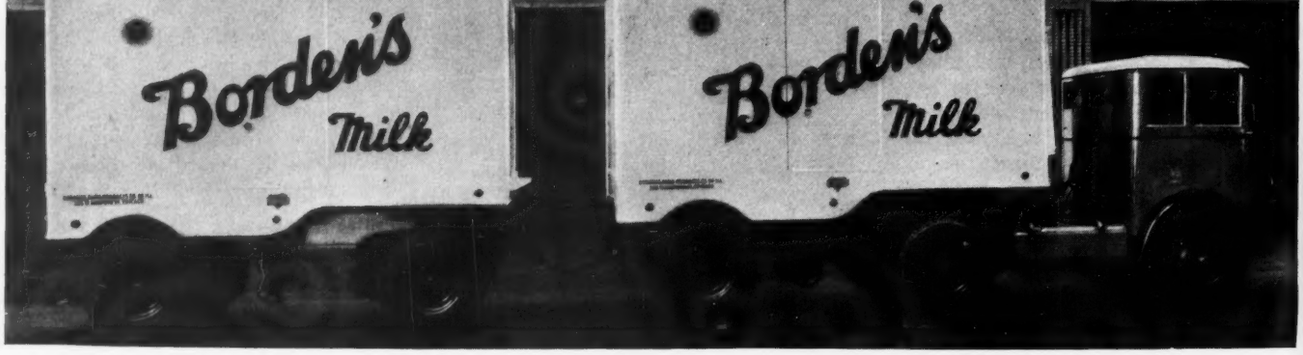
Modern round-nosed semi-trailer and pneumatic-tired tractor employed to move 5-ton loads of bread daily over mountain roads between Huntington, Charleston and Parkersburg, W. Va. The trailer body has side doors but none in the rear, the latter being omitted as a protection against dust getting into the body interior. The trailer is a Fruehauf and the tractor a White.

Trailers

They permit larger loads and also loading and unloading economies. Proper application of the trailer principle offers a means of reducing cost of transportation. Trailer improvements are predicted in the dairy industry.

ENTIRELY aside from the reduction in transportation cost obtained by the proper application of the trailer principle—that more can be pulled than can be carried—the use of trailers permits larger loads to be moved and results in considerable economy in loading and unloading operations. Several striking instances of such economies in the use of both four-wheeled and semi-trailers will be discussed in this article.

Generally speaking, the use of trailers permits larger loads to be moved because of better distribution of the load over more axles. This is true even with the single-rear-axle tractor and single-rear-axle semi-trailer, which gives three axles in all, as compared with the six-wheeled truck, because of the greater distance between the tractor rear axle and the semi-trailer axle than between the dual



An interesting installation of a semi-trailer and four-wheeled trailer with dolly, as used by the Borden's Farm Products Co. of Illinois, in Chicago, Ill. The combined length of the tractor-trailer train is less than 40 ft., to conform to the Illinois statutes. Note also the short-coupled, cab-over-engine tractor and that both trailers are identical semi-trailers, with the rear one made into a separate vehicle by a front end dolly.

This Autocar tractor and Fruehauf semi-trailer are used to distribute loads of cans and cartons of pretzels for Becker Pretzel Bakeries, Baltimore, Md. Note that it, too, has a round-nosed body to improve its appearance and reduce wind resistance. Note also the dropped trailer chassis frame and the good use made of the body sides for the Becker advertising message.

rear axles of the six-wheeled truck. In other words, even with the same net axle loading in both cases, the weight distribution of the tractor semi-trailer is spread over a longer wheelbase than with the six-wheeled truck.

THIS better tractor semi-trailer weight distribution is of great importance in consideration of the use of highways and especially bridges. No highway is stronger than its weakest bridge. Even with limited concentrated axle loadings, the greater the distance between the tractor rear axle and the semi-trailer axle, the larger is the number of bridge beams over which the gross vehicle weight is spread.

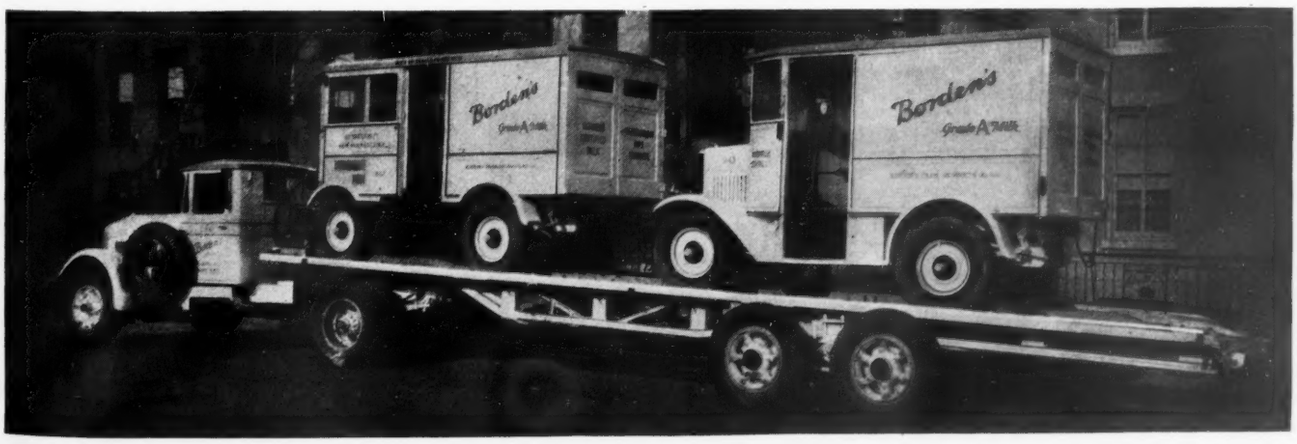
This is the reason most state laws permit greater gross loads on tractor-trailer combination than on four or six-wheeled trucks. The greater the distance between the tractor rear axle and the trailer axle, the greater is the gross allowable load up to certain limits of length.

The limit of length is not dictated by the weight distribution but by safety on the road. An unduly long combination is dangerous to pass on a narrow road because an oncoming vehicle may approach before the overtaking vehicle is able to pass around the tractor-trailer and get ahead of it in the proper road lane. Also, long tractor-trailer trains present a road hazard in blocking narrow roads when making turns, especially to the left. However, both of these hazards are being minimized as the number of four and six-lane main highways increases.

But the important fact so far as the food field operator is concerned is that the tractor-trailer combinations permit larger net payloads to be carried. And, other factors being equal, the larger the load carried, the lower the unit cost of transportation.

The possibilities for lower unit costs are further enhanced by the working out of the trailer principle. In practice, a 5-ton payload carried on a conventional 3-ton truck can be moved by a 1½-ton truck converted to a tractor and a semi-trailer. Nominally, this combination will have a lower first cost than the larger size of truck, lower depreciation charges, and lower operation and maintenance charges, with the driver's wages the same or only slightly higher.

IN addition to these advantages of larger loads and reduced unit costs, tractor-trailer combinations have a further advantage when the load to be carried is bulky yet light. The reduction in capital investment of 50 per cent and the reduction in operating



An unusual semi-trailer adaptation as used by the Borden's Farm Products Co., Inc., in New York City for the transfer of newly-painted horse wagons and retail route trucks from local paint shops to retail distributing branches within a radius of 50 miles of New York City. Two route trucks, as shown, or three single horse wagons can be carried at one time. When the trailer is not used in such work the tractor is utilized with other semi-trailers in moving cased milk.

expense of 33 per cent as made by American Can Company in the movement of cans used for food products through the substitution of a fleet of seventeen tractors and 26 semi-trailers for 29 regulation trucks, is a good example. The full details of how that saving was made were given on pages 558 and 559 of FOOD INDUSTRIES for December, 1934.

Bread, and cans and cartons of pretzels, are two relatively bulky yet light products that can be economically moved in tractor semi-trailer units. Two such actual units are shown among the illustrations.

The Hoppstetter semi-trailer carries 5-ton loads of bread daily between the plant in Huntington, W. Va., and distributing points in Charleston and Parkersburg. The tractor is a 1½-2½-ton White, with ample power to maintain the desired road speeds over the West Virginia mountain roads. The pretzel trailer has a body similar to that on the bread trailer, except that it has a greater height with the same length and width, and the same 5-ton capacity. It is used in Baltimore and vicinity.

The dairy industry is a large user of trailers of both the four-wheeled and semi- or two-wheeled types. The use of semi-trailers in the pick-up of milk in cans from railroad depots, and the distribution of cases of bottled milk in large cities, dates back as far as 1910, when the Knox three-wheeled tractor was one of the first types of automotive equipment used.

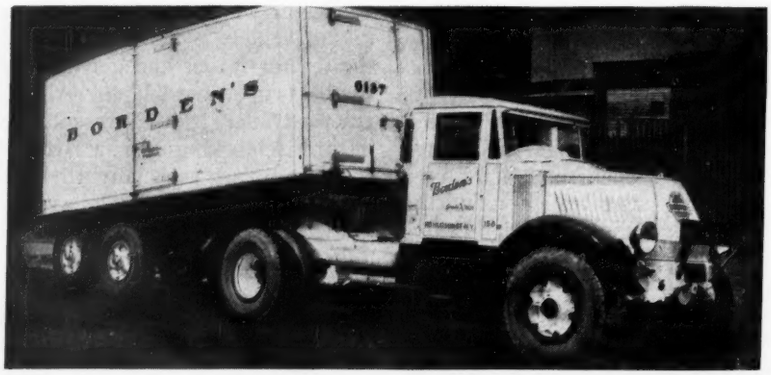
While the tractors used today in such work have kept pace with the development of automotive equipment in the last 25 years, many of the semi-trailers still in use are the old converted horse wagons with open bodies and canvas covers, truck wheels on solid rubber tires, and no brakes on the trailer wheels. Practically all of these trailers are excessively heavy in weight and fitted with antiquated fifth wheels, hoists or hand-operated jacks.

There is therefore a wide field for the development and improvement of trailer use in the dairy industry. FOOD INDUSTRIES predicts much activity along these lines in the current year, culminating in a semi-trailer chassis of much lighter weight with pneumatic tires and adequate trailer brakes and fully-automatic or semi-automatic mechanisms for the connection and disconnection of the trailer and its tractor.

ALONG with these developments should come a trailer body of much lighter weight and insulated if not refrigerated, to reduce the present cost of refrigeration by means of ordinary cracked ice. And with these reductions in trailer body and chassis weights should come another important development—the use of a lighter and smaller tractor and engine power-plant. These dovetailing developments taken collectively, should result in a reduced cost of milk transportation.

Because of the competition of outside contract haulers, many of the developments enumerated above have already taken place in the use of tankers bringing fluid milk from country milk-sheds to city pasteurizing plants. Therefore it is in the final distribution from pasteurizing plants to surrounding retail branches, now done almost exclusively by the milk companies themselves, that future improvements will be made.

Aside from the greater loads that can be moved by tractor semi-trailers as compared with four or six-wheeled trucks, the tractor semi-trailer permits of another economy in the transfer of cased milk from pasteurizing plants to retail distributing branches. This is the elimination of one handling of the load from the semi-trailer to the branch chill room and out again to the retail route vehicles. Upon arrival at the branch, the loaded semi-trailer is disconnected at the point past which the retail route vehicles are driven to obtain their individual loads direct from the semi-trailer body.



One of the modernized semi-trailers with a closed body and dual pneumatic-tired rear axles and air brakes as used by Borden's Farm Products Co., Inc., New York City, with a high-speed Mack tractor for the distribution of cases of milk from pasteurizing plants to retail branches. Note the special type of hoist to raise the front end of the semi-trailer before the supporting stationary wheels are lowered manually by means of a hand crank.

One of Borden's modern tankers. This one is owned by Borden's Farm Products Co., Inc., New York, N. Y. The tank is of Allegheny metal and holds 3,190 gal. of milk. The tractor is a twelve cylinder Brockway capable of maintaining a road speed of 40 m.p.h.

After the semi-trailer has been emptied, the retail route vehicles, as they return from their routes, unload their cases of empties directly into the semi-trailer body. Each time a tractor arrives at a branch with a full semi-trailer load, it is disconnected and is then connected to the semi-trailer brought the day before, and now filled with the cases of empty bottles to be taken back to the originating pasteurizing plant. In this manner, the tractor does useful work on both inward and outward trips.

How Borden's Produce Division Converted Its Truck Layout for Use on Salesmen's Coupes

The Hook Up

Between Passenger Cars and Trucks

Rear and side views of a typical Borden's Produce Division salesman's coupe carrying out the same color scheme and lettering layout as adopted for the company's large fleet of retail delivery trucks as shown in the picture at the bottom of the page. Also note at the left, above, the oilcloth tire cover in the form of the Poultryland seal. The top and bottom segments of the seal are blue with white lettering and the center section is white with red lettering.

The color scheme, painting and lettering layout was adopted first on the standardized Ford retail delivery truck shown above and then the general arrangement converted to fit the salesmen's coupes, also standardized 1930 and 1931 Fords. The base color of hood, cab and body is a rich cream with wheels and running gear red. The Poultryland seal is a contrasting blue, white and red.

A GOOD example of how the passenger car equipment of a company in the food field may be hooked up with the company's motor truck fleet is shown in the accompanying illustrations of the equipment of the Produce Division of the Borden Sales Co., Inc., with headquarters in New York City and branches in a dozen other cities. The truck painting and lettering was adopted first and then the general scheme made to conform to the company's coupes as used by branch managers, credit men and salesmen.

Of course the advantage of such an arrangement is the increase in the advertising value of the company's automotive equipment because those who see either the cars or trucks are immediately able to identify each type of vehicle as belonging to Borden's Produce Division. Also, by reason of this sameness of appearance of both cars and trucks, the combined fleet seems much larger than it really is. This is a business asset which could not be obtained if the passenger cars were painted any of the standard colors in which they can be secured new from the manufacturer.

The above condition had a bearing on the determination to use passenger cars of a few years' earlier models, in this case 1930 and 1931 Ford coupes. These were purchased second-hand and required painting after being put in A-1 mechanical condition. The Ford exchange motor plan permitted this mechanical repair work to be done at minimum expense and led in part to standardization on Fords.

Practical Problems of
TRUCK TRANSPORTATION

DISCUSSED BY EXECUTIVES IN THE FOOD INDUSTRIES

Separate Salesmen or Peddle Truck Routes

Question No. 14

1. In the distribution of food products such as fresh meats, prepared meat products, butter, eggs, cheese, poultry, ice cream, milk, bread and potato chips to retail store outlets, is it better to employ peddle truck routes on which the driver also takes the orders than to use a separate corps of salesmen to solicit the business with the truck driver simply delivering the goods? If so, why?

2. Which method provides the lowest cost per hundred pounds delivered?

3. Can the separate corps of salesmen, if provided with cars at company expense, or allowed mileage for privately-owned cars, procure sufficient additional business to offset the motor vehicle expense as compared with peddle truck routes with driver salesmen?

4. Or is a combination of both salesmen and peddle truck route driver salesmen the most desirable method of distribution?

Method Depends on Locality

WE HAVE a number of methods of distributing products to retail outlets. In some territories which are apparently much the same as other territories, we operate in entirely different ways. We may have a driver salesman or we may have a delivery truck which delivers orders taken by salesmen.

In Chicago, for instance, we at one time had a driver salesman method of operation. But trouble with the Unions caused us to discontinue this operation, so that now we have salesmen who sell our product and we have a drayage concern in Chicago which delivers.

In contrast, in the city of Minneapolis, we operate sausage trucks which are driver-salesman operations, and we also have salesman who sell the product to be delivered by delivery trucks.

The costs of the above operations are hardly comparable, because there are no two territories which are exactly alike with respect to the kind of product used and the margins obtainable by using one operation in preference to another. Therefore, any information that we might offer on this point would not be of any importance.

In a general way, we use salesmen delivery truck methods of distribution. Depending upon the territory, we allow them a flat mileage on their cars, or a weekly allowance which will cover their car expense and other expenses.

In the operation of our business, we have found that where it is possible to have driver salesmen it is the most desirable method of distribution.—H. H. COREY, *Vice-President, Packing Division, Geo. A. Hormel & Co., Austin, Minn.*

Salesmen More Economical

MY ANSWERS to your questions on truck routes versus salesmen are as follows:

In our experience, we have found that the distribution of dairy products —butter, eggs, cheese and poultry—in large volume to retail outlets can be more economically handled by means of salesmen, plus delivery service, than by selling from truck routes.

Route salesmen in certain territories, principally on long country runs, can sometimes be used to advantage. Their work, however, must be supplemented by separate and regular sales supervision to obtain maximum results. In closely populated areas the individual salesman's volume is limited only by his own ability. He is free to call on every type of outlet. He has the time and appearance usually that will gain him entrance to prospects and customers that the usual type of route salesman is not in a position to approach. His orders can run the full range of his line. His personal contacts can be supplemented by his order department's regular telephone calls, making it unnecessary for him to call for every individual order. He can usually devote as much time as necessary to making a sale, or to cementing and furthering his personal relationship with buyer or owner.

The route salesman is obliged to devote considerable valuable time to loading and unloading his truck. His sales volume is restricted very often by the amount of merchandise his truck will carry. When he has made a sale, he must return to his truck, assemble the merchandise, bill it, return to the store, and usually make collection. In larger outlets, his contacts are nearly always with clerks whose buying powers are restricted. His inability to extend credit also restricts his volume. Parking facilities in congested areas, where stores are usually located, waste considerable time. He can make just so many stops in his working day, must return and check in or out on a regular schedule, and make out lengthy and exacting sales and collection returns. The supervision of checking his truck stock in and out, and the clerical routine of accounting for his truck inventory is an important expense item in connection with route truck sales. Even under the most exacting system the question of shortages, pilferage, etc., presents daily problems.

There are, of course, certain perishable foods that must depend upon route sales distribution almost exclusively. Where these foods are distributed direct by their makers, or through subsidiaries, their margin of profit permits a high sales cost that in effect combines with it their delivery expense. The independent auto truck food distributor, however, obliged to depend entirely on the manufacturer's trade discount to absorb his warehousing, clerical, sales and delivery, financing (including credit losses) expense, has found the going very difficult during the past few years, as most manufacturers depending on this type of outlet can readily testify.

Our business, while founded in 1920 as a truck distributing business, has expanded to its present position by means of aggressive sales promotion of June Dairy brands of dairy products and other nationally-known food specialties, backed by efficient delivery service. Route trucks are used in our various branches only in territories where figures prove them to be the most economical method of distribution.—M. S. BANDLER, *Vice-President, June Dairy Products Co., Inc., New York, N. Y.*

Drivers Have Closer Contact

WE DO NOT believe that it is better to have a separate corps of salesmen for the distribution of retail products and we would much prefer driver salesmen on the delivery trucks, the principal reason being that in this way we have a closer contact with the retailer.

We have tried both methods and find the costs less per hundred pounds delivering with the driver salesman delivery method.

We have tried, on several occasions, to have a corps of salesmen solicit the

retail trade and found that the additional business obtained therefrom was not enough to offset the expense for the mileage covered with the salesmen's own cars or with the company's cars. We have tried this method thoroughly on a six months' test and found that our sales costs increased 6 per cent and the additional business obtained by this method did not warrant this additional expense.

We believe the best method of distribution to the retail outlet is to have thoroughly trained driver salesmen under strict supervision and instruction of a sales manager and have salesmen allotted to territories to contact the trade at least once every three weeks; not mainly for additional business, but to check up on method of delivery, promptness and courtesy of the driver salesman, and to collect delinquent accounts. We find that this method has proved far more satisfactory than anything else that we have ever attempted. —G. W. SCHULTZ, *Jersey Maid Dairies, Bordentown, N. J.*

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How Best to Provide Salesmen With Cars

Question No. 15

1. Is it best for the company to own the car and pay all the expenses incidental to its operation; to pay only a certain part of the expenses; or to have the salesman own the car and pay him so much per mile or per week?

2. Is the best method also the most economical?

3. If the car is company-owned and maintained, what precautions can be taken to prevent its being used by the salesman for his personal affairs or pleasure?

4. How important do you consider the advertising value of a salesman's car, and how may the greatest advertising value be obtained from it?

Favors Company Ownership

ANSWERING your questions regarding salesmen's cars:

1. After many years of experience, with thousands of cars, we are definitely in favor of the company-owned car, the same to be purchased outright by the company and all expenses pertaining to the same paid by the company.

Due to collective purchasing of certain accessories and materials, our costs in certain items are much lower than can be obtained by individual drivers. Also, we have a standard of equipment, whereas a group of salesmen with their own cars might have anything from the lowest to the highest priced cars, and we have found that under such conditions, any allowance made is always, in the mind of the driver, too little.

The initial investment in company-owned equipment is, of course, the stumbling block in the way of some companies establishing their own fleets. It also depends largely upon how much mileage is covered by the salesmen. If the average per car is less than 10,000 miles a year and the mileage allowance reasonable, there are some things in favor of a personally owned car. But where the mileage runs above the figure quoted and there is a sufficient number of cars in the fleet, many economies can be brought about with company-owned vehicles which cannot be effected with the individually owned cars.

2. The question as to which is the best method is still a subject of considerable argument. A method which may seem sound and practicable for one fleet of cars may be entirely out of reason for another, depending on how, when and where the cars are operated.

3. The rule of our company is that salesmen are not to use the cars for personal business or pleasure and are not to carry unauthorized passengers. With the type of men that we have in our sales organization, we find that this rule is generally obeyed.

Our cars of the coupe type have the company name and number prominently painted on both doors, and the commercial sedans which we largely use have, in addition, decorations on the side panels and on the rear doors. This also helps to discourage the use of the company cars for personal affairs.

4. Some years ago, when cars were not quite as common as they are today, we decorated them with slogans and pictures of our various products. We decided several years ago, however, that there was no particular advertising value, as cars were so common that unless they were decorated in an extreme way, or had peculiar body types, few people noticed them on the streets. As the expense of decorating our cars was considerable, we discontinued the practice and do not believe that we suffered any loss by so doing.

I make it a personal practice, when going around the streets, to observe any unusual types of cars, whether delivery vans or otherwise, and in so doing notice that the people on the streets pay very little attention to cars, even of an extreme type. We also found that when we decided upon the neater type of decoration, particularly with the modern type of commercial sedan, the salesmen felt that they were not driving trucks but something more in keeping with the position as salesmen.—C. L. JONES, *Automobile Division, General Foods Sales Co., Inc., New York, N. Y.*

Company Cars Best

IT IS my opinion that by far the best method is for a company to own the cars that are used by salesmen and to assume all of the operating expenses, where practicable.

There are times, however, when the nature of the territory, and problems of control and supervision are such that it would be more advantageous for the salesmen to own the cars and pay all operating expenses, the company making an appropriate allowance. But I should say these cases would be decidedly in the minority. Where territorial conditions do not make it practicable for a company to own the cars used by its salesmen, it is more satisfactory to grant a flat weekly allowance figured on a mileage basis. Determined by a thorough survey of the territory, the allowance should depend on road conditions, communities served and distances traveled.

Not only do I believe the best method is for the company to own the cars used by its salesmen for many reasons, but it is more economical as well. Every company operating automobiles is interested in the element of cost and therefore must have very definite means of control.

None of us, I feel sure, is foolish enough to think that all of the salesmen operating company-owned cars will at all times abide by the rule that cars must not be used for other than company business. However, this can be controlled to a large extent by the use of service records which show every movement of the car, together with the time when used. Salesmen can also be required to bring their cars to the plant for garaging where a strictly local operation is involved. While the personal use problem will never be entirely overcome, it can be reduced to within reason.

From the standpoint of advertising value, salesmen's cars should be painted the same colors as used on the company's fleet of trucks. Any advertising material used should be neat and not gaudy and should tie in with the copy used on the trucks when possible.—H. E. WENNAGEL, *Traffic Manager, Wm. Schluderberg—T. J. Kurdle Co., Baltimore, Md.*

Prefers Private Cars

REGARDING best method of providing salesmen with cars:

1. We feel that private ownership is the best method in large cities, taking everything into consideration.

2. The best method is not the most economical.

3. All of our cars are privately owned, and we are not responsible for personal use except to make sure they are thoroughly covered by insurance. Should we operate company-owned cars, we would not allow the salesmen to use them for personal pleasure after hours, keeping all cars in our plant garage.

4. We think the use of advertising on salesmen's cars is one of the best kinds of advertising to be obtained. We consider advertising the biggest reason for company-owned automobiles.—R. L. INGRAM, *Superintendent, Newton Packing Co., Detroit, Mich.*

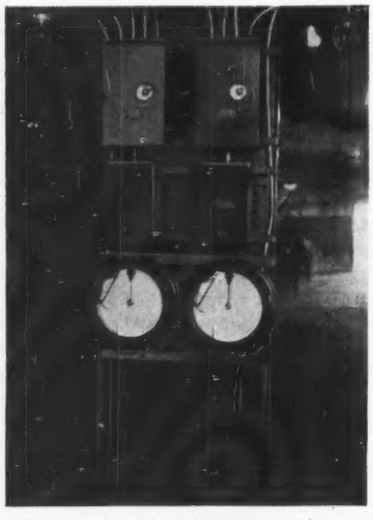
IDEAS
from Practical Men

Solving the Smoke Problem

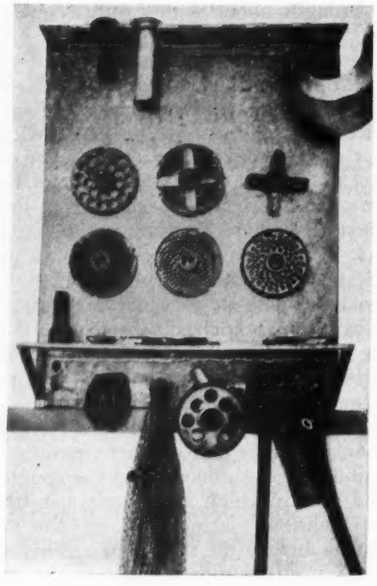
SUGAR refining calls for plenty of process steam, with particularly wide and rapid fluctuations in demand. At the Boston plant of the Revere Sugar Refinery, we generate about 4,000,000 lb. of steam per day, and the flow chart curve looks less like a circle than like the outline of some variety of octopus. Two or three 900-hp. evaporators may be opened onto the line without previous warning to the boiler room, and the demand must be met promptly and efficiently.

In general, our equipment consists of six oil-fired boilers, rated at 600 boiler hp., but operated at from 175 to 300 per cent rated capacity. Steam is generated at 160-lb. pressure, and supplies power as well as processing requirements for the plant. The boilers are oil-fired, and equipped with an automatic burner control, which puts two of the four burners on each boiler in or out of operation as required to meet the steam demands. Bunker C fuel oil is burned in these boilers; a fuel which imposes particularly rigorous demands on combustion control if the plant is to operate efficiently.

Each boiler is equipped with a CO_2 indicator and recorder, providing a general guide for adjusting burner control apparatus to maintain the best combustion conditions.



Smoke alarm installation at Revere sugar refinery.



Wall rack for spare parts.

However, for as large a user of fuel as ourselves, the losses due to a smoking chimney may still run into a considerable amount without some rapid and dependable check upon smoke entering the stack. From our own standpoint, as well as that of the community around our plant, we have been anxious that the two 210-ft. stacks at the plant maintain the best possible record in this respect. In the first place, a food plant is hardly likely to create an impression of cleanliness within the plant, and of the product, in the minds of those who observe smoke from its stacks polluting the surrounding atmosphere. In the second place, smoke in the stack is a sure sign of a badly adjusted burner or some other situation which is lowering the efficiency of steam generation and adding to boiler maintenance costs.

The problem of knowing quickly when a smoking furnace exists has recently been successfully solved by the installation of two photo-electric smoke alarm units. In each of the stacks, a light source of regulated intensity is focused upon a light-sensitive cell which generates electric energy in proportion to the light striking it. Each cell is wired to a sensitive relay, which in turn controls a warning gong and light through a mercury switch. When smoke in the stack comes between the light source and this Weston cell, it reduces the current flowing to the relay. At some predetermined smoke density level, the relay operates and sounds the alarm which gives the boiler-room staff rapid warning.

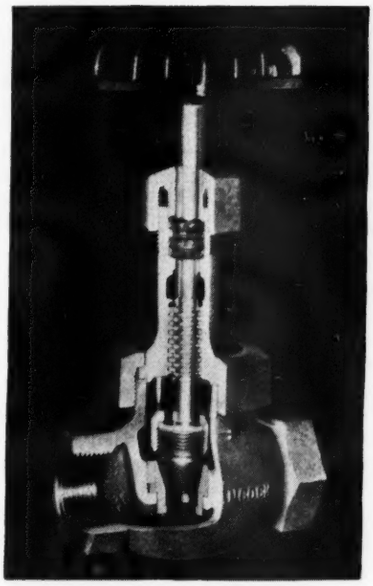
In our installation, recorders have also been installed to provide a record of the periods when smoking takes place, and the length of time which elapses before the condition is corrected. In addition to fuel economy, we feel that control of the smoke problem at its source will reduce problems of tube cleaning. Finally, while it is difficult to put any dollars-and-cents valuation on smoke elimination from the standpoint of community good-will, we have no doubt that the new control is well worth while from this standpoint alone.—R. P. De Vries, *Boston, Mass.*

Parts Board Saves Time

WHERE a food machine requires an occasional change of parts, the length of the shutdown for such a change can be minimized by having the parts mounted on individual pegs within easy reach of the machine. Such an arrangement, used at the Mineola, N. Y., plant of Wilson & Co., is shown in the photograph.

In the processing department of this plant is a sausage grinder which is used to cut meat to various degrees of fineness, different sets of knives being required for the various cuts. Mounted on the wall alongside this grinder is a galvanized-iron "board" on which the knives are hung when not in use. Measuring about 4 ft. high and 3 ft. wide, the board has a shelf at the bottom, a rack at the top and galvanized-iron pegs in between. A row of pegs under the shelf at the bottom accommodates tools used in the processing department. A parts and tool board of this type keeps extra parts sanitary and avoids cluttering up a department with loose tools, in addition to saving time.

NEW EQUIPMENT
for Food Manufacturers



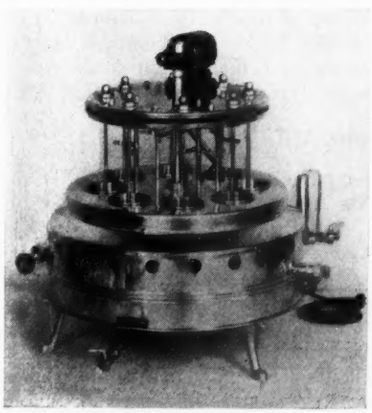
New Hancock Globe Valve

Globe Valve

A NEW union bonnet bronze globe valve has been developed by the Hancock Valve Division of the Consolidated Ashcroft Hancock Co., Bridgeport, Conn. Longer-wearing qualities are claimed for this valve because of the use of hard stainless steel valve disks and seat rings, said to prevent wire-drawing, steam cutting and galling. Another long-life feature is the use of a new special bronze for the valve stem and bonnet. Tight back-seating is provided by the design, permitting repacking while the valve is in service. These valves are made for steam pressures up to 300 lb. and are available in both globe and angle patterns.

Oil-Resisting Belt

ONE HUNDRED per cent oil resistance is claimed for a new belt developed by L. H. Gilmer Co., Tacony, Philadelphia, Pa. This belt is of special composition, designed to be practically impervious to oil. It comes in V-type and flat "Kable Kord" type.



Mashing apparatus.

Mashing Apparatus

AN APPARATUS for the determination of extract in malt, conforming to the requirements of the official methods for analysis of malt of the Malt Analysis Committee, has been developed by Wahl-Henius Institute, and is being manufactured by Weber Brothers Metal Works, Chicago, Ill. It has a water bath heated by a ring burner, jacketed for heat control. Water level is maintained constant by means of an overflow. For rapid cooling, a cold water connection fills the bath quickly after the warm water is drained off. Indicating thermometers show the bath temperature. Beakers and stirrers are of nickel. Clamps on the stirrers carry a thermometer in each beaker. A small motor supplies power to the stirrers.

Air-Operated Controllers

A FULL new line of recording and indicating air-operated controllers for temperature, flow, pressure and liquid level has been developed by Brown Instrument Co., Philadelphia, Pa. There are four different types: "Air-o-Line"; "Full-Throttler"; "Throttler"; and "On-Off Controller."

"Air-o-Line" has a 1 to 150 per cent throttling range and automatic reset. It corrects for magnitude, rate and direction of departure from the control point. It is adapted for full automatic control, and is readily adjustable. It can be supplied in ranges from —300 deg. F. to +3,400 deg. F. for temperature. For pressure the ranges are from 30 in. vacuum to 3,000 lb. per sq.in. pressure. Flow and level controllers are also offered in this type.

"Full-Throttler" has a 1 to 150 per cent throttling range and manual reset. "Throttler" has a 1 to 10 per cent throttling range and manual reset. "On-Off Controller" is for two-position service.

Streamlined Truck

A NEW, streamlined series of trucks has been brought out by White Motor Co., Cleveland, Ohio. Designed as Model 704, this series of trucks has been styled by Count de Sakhonoffsky, a noted designer, and exhibits thoroughly modern lines. The engine, a six-cylinder model, is the White "Pep Head." The cab is automatically air-conditioned. Brakes are booster-operated, of hydraulic type. Capacity of the Model 704 is 1½ to 2 tons.

In addition to this model, White also announces Model 703, of 1-1½ ton capacity; Model 704-A of 2-3 ton capacity; Model 709, of 2½-3 ton capacity; and Model 709-A of 3-4 ton capacity.

Streamlined White truck.

Perforated Screens

MADE by an entirely new method, perforated screens useful for screening, sifting or bolting operations, are now being supplied by Electrolytic Products Corporation, 250 West 39th St., New York, N. Y. The method of making these screens, electrolytic deposition, insures smooth surfaces on both sides, and uniform spacing and diameter of holes. Screens are made up to 400

holes per linear inch (160,000 holes per sq.in.), so that any desired fineness of mesh can be obtained.

Heavy Duty Caster

FORGE-WELDED, heavy duty casters of new design are now being manufactured by Service Caster & Truck Co., Albion, Mich. These casters have been designed for heavy loads and long life. They are of forged steel, with ball bearings on the swivel motion and roller bearings on the wheels. Wheel diameters of 5 to 10 in. are available, with corresponding floor clearances from 7 to 12½ in.

Crushed Ice

FOR icing or cooling food products, Vilter Mfg. Co. has developed equipment for producing crushed ice by a new method. With capacities from 2 to 30 tons per day, these machines are called "Pak-Ice." The ice is produced in crystal or briquet form. It is formed in twenty minutes and production costs are said to be about half those of former methods of manufacturing crushed ice.

Parcel Delivery Truck

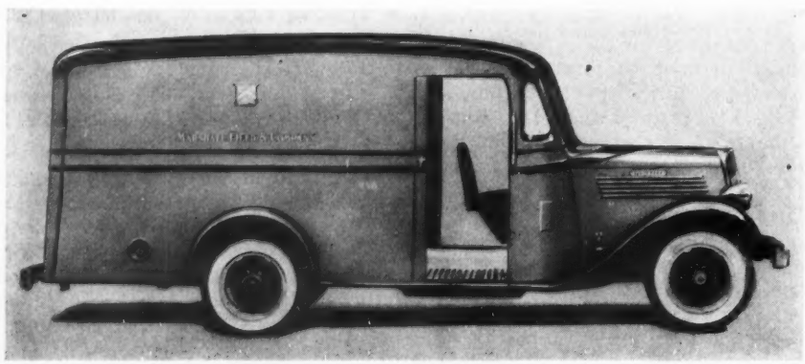
FOR parcel delivery, Studebaker Corp., South Bend, Ind., recently brought out a special-design truck. Mounted on the Studebaker "Ace" chassis, this truck comes in three models: Model 774 with a loading compartment lengtl. of 104 in. on a 133-in. wheelbase; Model 775 with a loading compartment length of 120 in. on a 146-in. wheelbase; and Model 776 with a loading compartment length of 144 in. on a 165-in. wheelbase. All models have inside body width of 60 in. and inside body height of 64 in. Exterior and interior of body are in de luxe finish.

Truck Tire

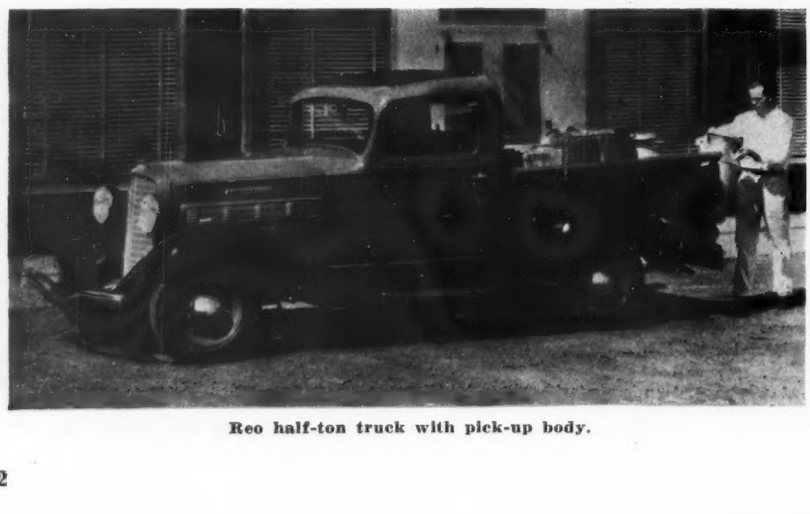
FOR service in city delivery work, where tires are subjected to the wear incident to frequent stops and starts, Goodyear Tire & Rubber Co., Akron, Ohio, has developed a new tire known as the "Stop-Start." It is available in the full range of sizes usual on delivery trucks and is recommended by its maker for use where speeds do not average more than 35 to 45 m.p.h. The tire is designed to give slow tread wear, with deeper cut shoulders to speed-up heat dissipation, and the non-skid portion of the tread is 30 per cent deeper than on standard tires.

Half-Ton Truck

A NEW half-ton Reo Speed Wagon is offered by Reo Motor Car Co., Lansing, Mich., in two standard body types on a 118-in. wheelbase chassis. These bodies are the panel and pick-up models. The trucks have a "Silver Crown," heavy-duty 6-cylinder engine, giving 72 brake horsepower at 3,200 r.p.m., a three-speed transmission, and hydraulic brakes. Tires are 6.00x16 four-ply front and rear.



De luxe parcel delivery truck.



Reo half-ton truck with pick-up body.

Special Flaking Mill

FEATURING double anti-friction bearings, a new special flaking mill has been added to the line of milling machinery produced by Allis-Chalmers Manufacturing Co., Milwaukee, Wis. These new bearings are used to overcome oil leakage, frequent replacement and loss of production attributed to the babbitted type of bearings. Among other new features of this design are variable speed drive on the feeder, a roll pressure indicating device, a worm gear arrangement for the paralleling and adjusting of the rolls to the flaking position, and adjustment of the scrapers by means of hand-wheels.

Steam Trap

SMALL size is an outstanding feature of a new steam trap introduced by Yarnall-Waring Co., Chestnut Hill, Philadelphia, Pa. This trap, called the "Yarway" impulse trap, comes in six sizes, from ½ to 2 in. and is little larger than a pipe union. The ½ in. trap weighs 1⅛ lb. Operating range is 0 to 400 lb. per sq.in. The trap body is made of cold-rolled steel, working parts of Monel metal, and bonnet and cap of brass.

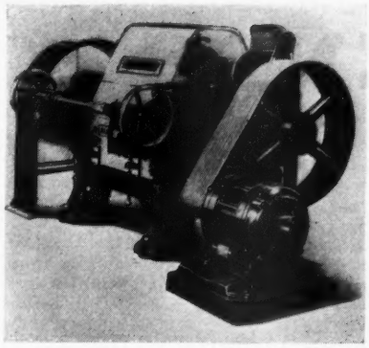
Operation of this trap depends upon the difference in flow characteristics of cold water, hot water and live steam, flowing through two orifices with a chamber between. There is only one moving part, the valve disk, as shown in the accompanying illustration.

Bowl Mill

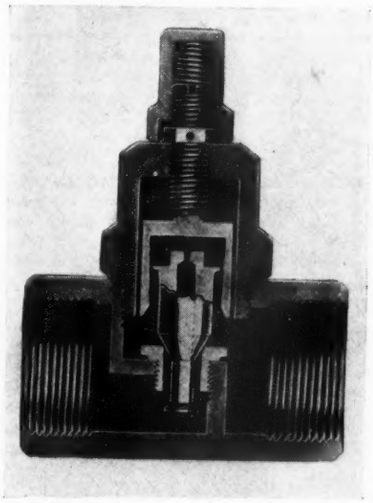
FOR pulverizing coal and similar materials, Combustion Engineering Co., Inc., 200 Madison Ave., New York, N. Y., has brought out a new pulverizer called the Raymond bowl mill. Because there is no metal-to-metal contact between the bowl and the rolls of this machine, it is claimed that friction losses, power consumption and maintenance expense are lower, and that the machine runs more quietly. The speed is constant, with output proportional to rate of feed. In operation, the bowl revolves, and, as material is ground, it works upward until picked up by an air current which carries it to the separator for further classification. A spring pressure release prevents damage from ungrindable material.

High-Speed Mixer

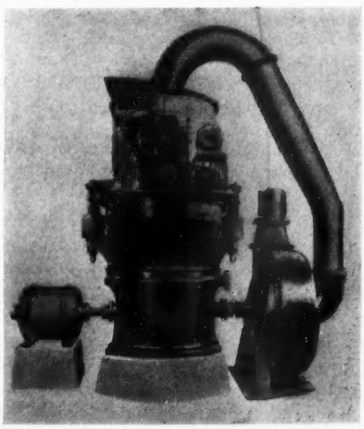
A HIGH-SPEED mixer for small and medium-size bakeries, and for special batch work in larger bakeries, has been brought out by Read Machinery Co., York, Pa. Called the "Ranger," it is made in 1, 1½ and 2 bbl. sizes, and is equipped with the Readco-Pierre high-speed agitator. Capacities are 360, 540 and 720 lb. of dough, for the respective sizes. Speed control is by push-button, the machine being provided with high.



Special flaking mill.



Working parts of "Yarway" steam trap.



Bowl pulverizing mill.

low and jogging speeds for the agitator. The case is streamlined, with baked enamel finish. Through hand or power dump, the bowl can be raised or lowered in 20 seconds.

Pyrometer

BRISTOL CO., Waterbury, Conn., has developed a "Wide-Strip" pyrometer, available in single-record, multiple-record and recorder-controller types. It operates on the potentiometer principle, and is said to possess unusual accuracy, deflections smaller than 0.001 in. being accurately measured. Drive is positive, from an induction motor. Records are made on a 12¼-in. chart and it is equipped with a 1¼-in. indicating scale. The case is moisture, fume and dustproof, and is designed for wall mounting.

Variable Speed Transmission

NEW features have been incorporated in the P.I.V. Gear variable speed transmission by Link-Belt Co., 910 South Michigan Ave., Chicago, Ill. With these changes, the entire line of reducers can be furnished in the following combinations and sizes: (1) motorized (when desired), with motor forming an integral part of the unit; (2) with or without speed reduction gearing; (3) with horizontal or vertical box; (4) in sizes from 5 to 15 hp. capacity.

Before these changes, this transmission was available only up to 10 hp., and only with horizontal box. Also, the gear reduction and integral motor were unavailable.

Unit Heaters

THREE standard types of "Electromode" unit heaters are being manufactured by Electric Air Heater Co., a division of American Foundry Equipment Co., Mishawaka, Ind. These heaters have a cast-in electric heating unit, consisting of a helicoil sheath wire type of resistance heater element cast integral with an aluminum fin type of grid. These fin type grids are said to give the greatest possible heat dissipation in a given area. Operation is at a maximum temperature of 250 deg. F. No hot wires are exposed. Types made are: portable type that plugs into a wall socket; built in wall type for room heating; and industrial type for wall or ceiling suspension.

The Manufacturers Offer . . .

Air Filters — The "Dry-Matic," dry-type, fully-automatic, self-cleaning air filter made by Coppus Engineering Corp., Worcester, Mass., is the subject of Bulletin F-350-1.

Chain Selector—For selecting silent chains for drive purposes, Morse Chain Co., Ithaca, N. Y., is offering a sliderule selector which enables the non-technical man to properly select chain drives within the range of ½ to 150 hp.

Welders—Two new bulletins of the Lincoln Electric Co., Cleveland, Ohio: No. 309, general specifications for engine-driven welder, Model SA-200, Type S-3676; No. 310, general specifications for engine-driven welder, Model SA-300, Type S-3677.

Uniforms—New models of washable uniforms for women employees are described in a folder issued by Angelica Jacket Co., St. Louis, Mo.

Rotary Pumps—Bulletin W-475-B8, Worthington Pump & Machinery Corp., Harrison, N. J., describes Types GS, GR and GE double helical rotary pumps.

Variable Speed Transmission—Transitorq, a new transmission with output speed variable over entire range, described by New Departure Mfg. Co., Bristol, Conn., in a new bulletin.

Maintenance Material—A 24-page catalog of building maintenance and construction materials for floors, roofs and walls, is issued by the Stonhart Co., Philadelphia, Pa.

Time Switches—Types T-17 and T-27, general purpose automatic time switches, described by the General Electric Co., Schenectady, N. Y., in Bulletin No. GEA-1427D.

Steam Traps—The "Yarway" impulse steam trap is described in circular T-1720 by Yarnall-Waring Co., Philadelphia, Pa.

Thermal Products—Insulation, packing, refractories, roofing and siding, flooring, and other products of Johns-Manville, 22 East 40th St., New York, N. Y., described in a new general 48-page catalog.

Service Recorders—A booklet entitled "Ten Ways of Getting More Work out of Motor Trucks," issued by the Service Recorder Co., Cleveland, Ohio, discusses the use of service recorders on trucks.

Laminated Bakelite—Synthane Corp., Oaks, Pa., has issued a new folder entitled "Synthane Laminated Bakelite for Mechanical Application," describing the uses of this material.

Control Valve—Bulletin No. 7009-A, issued by Hancock Valve Division, Consolidated Ashcroft Hancock Co., Bridgeport, Conn., describes the Flocontrol valve, a manually-operated valve for controlling flow.

Adhesives—National Adhesives Corp., 820 Greenwich St., New York, N. Y., has issued a booklet describing starches and dextrines used for adhesive and sizing purposes.

Brine Coolers—Horizontal, vertical, single pass and multiple pass brine coolers in all sizes are discussed in Bulletin 1103, issued by Carbondale Machine Corp., Harrison, N. J.

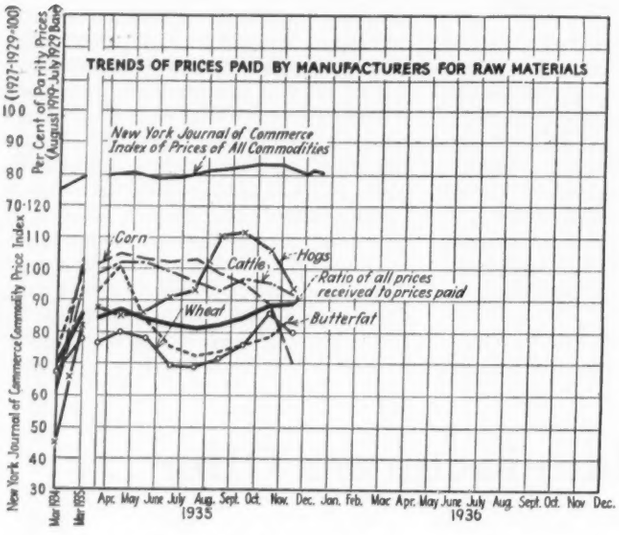
Gaskets—Catalog 48, Goetze Gasket & Packing Co., Inc., New Brunswick, N. J., is a complete catalog of metal and composite gaskets and accessories made by this concern.

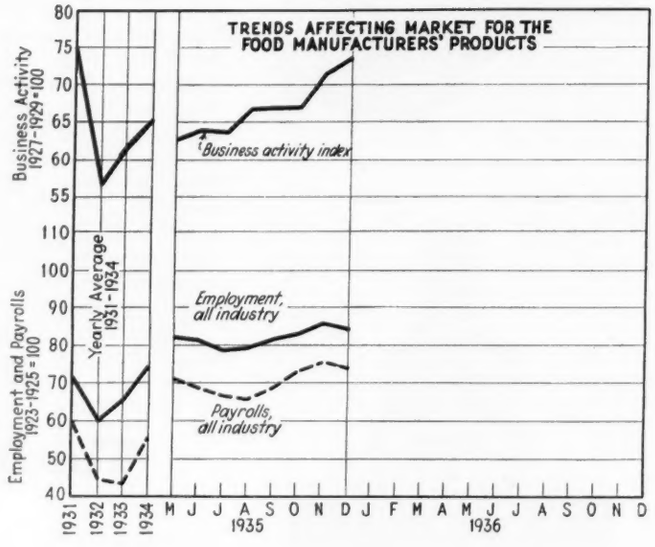
Wire Cloth—For screening and similar purposes, wire cloth made by Audubon Wire Cloth Corp., Philadelphia, Pa., in a wide range of materials and meshes, is described in Catalog No. 40.

Controllers—Catalog No. 8900, of Brown Instrument Co., Philadelphia, Pa., describes the complete line of air operated controllers for temperature, pressure, flow and liquid level, as made by this concern.

Laboratory Supplies—Several new leaflets, issued by R. P. Cargille, 118 Liberty St., New York, N. Y., describe chemicals and equipment for laboratory use.

BUSINESS TRENDS


TRENDS OF PRICES PAID BY MANUFACTURERS FOR RAW MATERIALS
New York Journal of Commerce Index of Prices of All Commodities
Corn
Cattle
Hogs
Wheat
Butterfat
Ratio of all prices received to prices paid
New York Journal of Commerce Commodity Price Index
Per Cent of Parity Prices (August 1919-July 1929 Base)
1935
1936



New Trend Curve Groupings

BEGINNING with this number of FOOD INDUSTRIES, the curves showing trends in various factors affecting the food field will be grouped in a different way.

On one of the new charts are shown the curves indicating changes in the per cent of parity prices for wheat, corn, hogs, cattle and butterfat and the curve showing changes in the ratio of all prices received to prices paid (by farmers). These are plotted from figures released by the U. S. Department of Agriculture. On the same chart, for purposes of comparison, appears a curve plotted from the *New York Journal of Commerce's* index of all commodity prices. Taken together, these curves give an indication of the general trends affecting the food manufacturers' raw materials costs.

On another chart are grouped three curves that indicate trends affecting the consumer market for foods. Factory employment and factory payroll curves, based on figures released by the U. S. Department of Labor, are indicative of present consumer purchasing power. The curve of general business activity, plotted from the *Business Week's* weekly business activity index, indicates, by its changes in slope, the immediate level of business, and hence the probable consumer purchasing power in the near future.

The charts of wholesale prices, and of retail food prices and cost of living, remain as in past months. Of these, wholesale and retail price-curves are plotted from data of the U. S. Department of Labor, and the cost of living data is that of the National Industrial Conference Board.

Because of this new arrangement of charts, and the consequent saving of space on these pages, it will be possible to present other useful data in chart form, as opportunities occur. This month, for example, we reproduce the latest chart of total numbers of cows, showing the so-called "cow cycle," as recently released by the United States Department of Agriculture.

Indicators

COFFEE consumption in the United States, for the four months ending with October, was 4,143,328 bags, 17 per cent higher than for the same period of 1934.

CORN production in 1935 will approximate 2,211,268,000 bu. according to the most recent report of the Crop Reporting Board of the Department of Agriculture.

CAR loadings in mid-December were 6 per cent greater than for the same week of 1934, and 10 per cent greater than for 1933.

BUSINESS activity, according to the *N. Y. Journal of Commerce's* weekly index, stood at 84.3 per cent of normal in the third week of December, compared to 68.4 per cent of normal a year before.

ELECTRICITY production continues to scale the peaks, each succeeding week shows new all-time high figures. It is now 11.5 per cent over the figures for the preceding year.

HOLIDAY sales for Christmas, 1935, were the largest recorded since 1930, between 10 and 20 per cent above 1934.

WEEKLY food price index of Dun & Bradstreet now is approximately 12 per cent over the figure of a year ago.

BONDS and notes to the value of $158,250,000 were marketed by food companies in the first ten months of 1935.

Wheat and Flour Near Normal

THANKS to drought and adverse weather, world wheat supplies are for the moment slightly below normal. Total supplies for the 1935-1936 crop year are now estimated to be around 4,360,000,000 bu., excluding the crops of Russia and China. This is a decline of 240,000,000 bu. below the preceding season and more than half a billion bushels below the average supplies available during the period 1928-32. The estimated production for the crop year 1935-1936 of 3,490,000,000 bu. was slightly larger than the production of the preceding year and about 370,000,000 bu. below the 1928-1932 average.

The result of this situation has been better prices in the world market and a reduction of the spread between the United States price and the world price. Disregarding day-by-day fluctuations in the market, an improved position of the wheat farmers of the United States may be looked for, at least until after the next harvest, with consequent additional

Business Spurts Ahead

BUSINESS activity in the United States continues on the upward grade to a level approaching that at the close of 1930 in the face of (1) resistance to higher commodity prices, (2) seasonal decline in heavy manufacturing and transportation operations, (3) uncertainty over expected Supreme Court decisions affecting New Deal legislation on AAA, TVA, Guffey Act and Bankhead Act, (4) certainty that reassembling of Congress means voting of bonus to World War veterans and likely passage of other disturbing legislation and (5) complications in international political and economic affairs.

Retail sales for Christmas were slow in getting under way but since Dec. 1 have run about 10 per cent ahead of last year with mail order stores reporting orders to be ahead of 1929. Passenger transportation for holidays is expected to be heaviest in several years. Index of Business Activity as reported in *Business Week* shows a spurt of 9.14 per cent to 75.2 per cent of "normal" for the five weeks ending Dec. 21; a rise of 20.71 per cent for the year.

As was the case a year ago commodity prices have weakened since the first two weeks of December. For the five weeks ending Dec. 21 U. S. Department of Labor reports no change in wholesale prices for all commodities, a decrease of 0.64 per cent for farm products and a rise of 0.47 per cent for food; total rises in all commodities and food for the year are 4.82, and 13.13 per cent respectively; farm products fell 8.57 per cent. The New York *Journal of Commerce* index of prices for the five weeks ending Dec. 28 shows decline of 1.09 per cent in general index, 6.86 per cent in grain prices, and 1.30 per cent in food. For the year the general index is 3.96 per cent higher, grain prices have dropped 10.14 per cent, and food is 13.53 per cent higher.

strength for the food industries in general.

Flour milled in the United States for November was 5,587,165 bbl. compared to 5,500,664 bbl. milled in the same month of 1934. Milling totals for the year are almost exactly equal to the previous years' total, according to the Department of Commerce. There is some domestic shortage of hard grades of wheat for milling, and imports of this grade are being made to overcome the deficit. However, there is plenty of wheat in the country of one kind or another to meet the demands for flour, and no shortage of flour should develop between now and the next harvest though higher prices may result from the import situation.

Truck Crop Prospects

SOUTHERN yields of vegetable crops, competitive with canned products, are expected to be considerably higher this winter than last. The Bureau of Agricultural Economics recently released figures for several crops, which bear out this expectation.

The Florida and Texas fall-crop of tomatoes is forecast at 445,000 bu., 10 per cent over the 1934 yield and 53 per cent above the five-year average. Snap bean production for the fall in the same states is expected to be 1,587,000 bu., compared to 1,173,000 bu. last year, and a five-year average (1930-1934) of 1,490,000 bu. Arkansas, Oklahoma and Virginia (Norfolk district) are reported as having 4,700 acres in fall spinach, as against 3,200 acres last year.

Winter plantings of beets in Texas are forecast as 20 per cent greater than the harvested acreage in 1934. Expected cabbage plantings are 73 per cent over 1934 and 31 per cent above the five-year average. Arizona and Texas carrot plantings are estimated at 11,000 acres, compared to 10,240 acres harvested in 1934 and a five-year average of 9,760 acres; while in California the acreage planted to carrots is 18,900 acres, an increase of 10 per cent over last year, and 30 per cent over the five-year average.

It should be kept in mind that these figures are for plantings, and yields may be considerably less than indicated, because of possible storm and frost damage. Already, reports of such damage are coming in. For example, on Dec. 1 a frost in the Everglades is reported to have killed from 75 to 90 per cent of the fall snap-bean crop in that area, and to have severely damaged 80 per cent of the winter beans.

Dairy Outlook for 1936

NO GREAT change in the total number of milk cows in the United States is to be expected during the next two years, reports the U. S. Department of Agriculture. In 1935, milk cow numbers decreased by approximately 600,000, thus reducing the herds so that the number of milk cows per capita is now at about the average figure for the last ten years.

Average milk production per cow was higher in 1935 than in 1934, and is expected to register an additional increase this year of about 4 or 5 per cent, if rainfall and feed production are near normal.

Stocks of cream, butter, cheese and other manufactured dairy products are slightly lower than a year ago. In spite of the falling-off in the production of milk, cream and butter during the last three months of the year, the total supplies of milk products are expected to be somewhat larger in 1936 than in 1935.

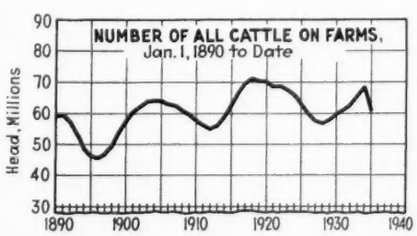
Consumption of fluid milk indicates that the low point has been passed and that consumption should show increases during 1936.

Consumption of butter is currently running about 7 per cent over the corresponding period of last winter, while cheese consumption and evaporated milk consumption are 11 per cent higher.

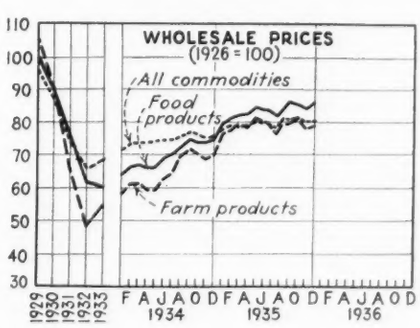
U. S. Department of Agriculture figures for per capita consumption of dairy products in 1934, recently released, show a continuation of the general trend toward higher consumption of these products, with cheese at 4.84 lb. per capita, butter at 18.01 lb. per capita, and condensed and evaported milk at 14.99 lb. per capita.

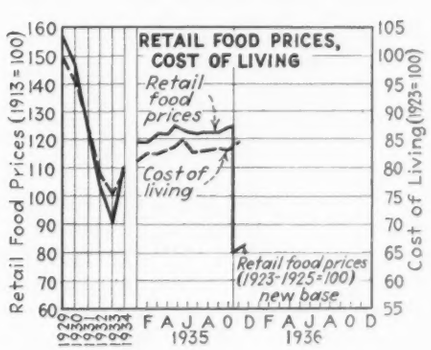
Construction News

	Pending (thousands)	Awarded December (thousands)	Total Awarded 1935 (thousands)
Bakery	$63	$30	$882
Beverages	979	600	6,030
Canning and Preserving	113	30	926
Confectionery	...	....	28
Grain Mill Products	58	....	1,414
Ice Manufactured	36	28	487
Meats and Meat Products	178	....	2,235
Milk Products	248	1,000	3,174
Miscellaneous	1,287	72	4,479
Total	$2,962	$1,760	$19,655



Number of all cattle (milk and beef) on farms reaches a maximum about once in sixteen years, with minimum points occurring about half-way between maximums. In 1934, this cycle was interrupted on one of its upward courses before it reached the peak, by drought and government slaughter, turning abruptly downward.





Bottle-Washing Materials

(Continued from page 23)

in this paper. There is very little question that as a source of alkali of high efficiency, sodium hydroxide is the most economical and that other ingredients, because of their various qualities, may be added with benefit. In one series of observations employing a compound containing 60 per cent caustic and 40 per cent carbonate, the cost of the washing compound was 4.3 cents per 1,000 bottles. In another series of observations employing straight caustic, the cost of ingredients was about 5 cents per 1,000 bottles. In figuring costs it is necessary to determine the amount of compound used up but comparisons should not be merely on the basis of pounds of material used for a charge. It should be borne in mind that some compounds contain as much as 30 per cent or even 60 per cent moisture. When new compounds are introduced these reported costs should be the performance they must attain if they are to compete effectively with the other washing mixtures.

For determination of relative economy and cleansing properties of bottle washing materials a plant run is best; information as to germicidal properties may be obtained at the same time if desired. However, it must be recognized that a dependable plant run is a time-consuming and arduous task, for it is necessary to include the following steps:

1. Test run of at least two weeks, preferably a month, of continuous daily operation under factory conditions.
2. Record of the concentration of compound at the beginning of each day's run; in each tank if a compartment soaker is employed.
3. Record of concentration of the compound at the end of each day's run.
4. Record of amount of compound added daily; to each tank in a compartment soaker.
5. Record of temperature taken several times during the day, at each tank. (A recording thermometer is preferable.)
6. Number of bottles washed daily and their sizes.
7. Number of bottles rejected daily.
8. Number of hours the washing machine is in operation.
9. Bacterial counts of the various tank liquors.
   (a) During the first hour of operation (daily).
   (b) Near the end of the operation period (daily).
10. Bacterial counts of the bottles.
   (a) During the first hour of operation.
      1. Before spray rinse.
      2. After spray rinse.
      3. After chlorine rinse (if used).
   (*b*) Repeat (*a*)—1, 2 and 3 near end of the day's operation.

From a series of runs of this type it was found that by following the recommendations of the A.B.C.B. laboratory the cost of cleaning compound was only about 5 cents per 1,000 bottles; a sum which is very reasonable considering the work accomplished.

That the compound used should not be corrosive on the machinery or interfere with its running efficiency is quite evident. Some of the milder alkalies, when used alone in the absence of free caustic, have, on occasion, been found to interfere with the smooth running of the washing machine and at times have so gummed up the apparatus that the machine has had to cease operation entirely. In the presence of sufficient free caustic, however, this deleterious situation does not arise. Free caustic deposits a protective coating on bottle washing machinery which is essential for its successful operation.

A washing compound may be ever so effective but if the operator does not have a simple method of knowing whether or not he has the proper concentration of the compound in his soaker solution it will be useless for practical operation. It is as important for the operator to be able to measure the strength and to control the concentration of his washing solution as it is to have a good, dependable, and efficient washing compound to begin with. Even if the claims made for colloidal substances and specific disinfectants were substantiated, their use in soaker solutions would be open to serious question because of the lack of simple and adequate tests by which the operator can know when the colloids or disinfectants have been spent or used up. The situation is quite different with reference to the alkali washing solutions which have been recommended by the A.B.C.B. The A.B.C.B. Alkali Test and the A.B.C.B. Caustic Test have been so perfected that any operator can use them successfully and thereby maintain the desired strength of his washing solution. This constitutes an important and significant reason for the successful employment of caustic with other alkali mixtures as bottle washing compounds.

Asparagus Butts

(Continued from page 19)

agitation with 8 oz. of water to the boiling point and compared with 4½ oz. fresh asparagus, cut into small pieces and cooked with the same amount of flour, salt, sugar, pepper and water. Taste tests were made and it was definitely proven by the majority opinion of six disinterested parties that the products made with the dehydrated material from test No. 1b. was the equal in flavor to the fresh asparagus and superior to either of the samples from the other two tests. The flavor and aroma, it was found, were very definitely those of asparagus.

Further tests were then made to improve the soup formula that had been used. It was found that the best soup formula was produced by using the following proportions:

	(ounces)
Powdered Dehydrated Asparagus Butts.	75.0
Processed Corn Flour	20.0
Salt	4.5
Fine White Pepper	.5

This mixture, used on the basis of 2 lb. to 2 gal. of water, gave what was considered to be a very good asparagus soup. These formulas, of course, are to be considered only as suggestions for using the dehydrated asparagus butts. They can be varied to suit the taste of the individual.

Drying a ton of butts per eight-hour day would require 5,600 lb. of steam to operate the drying equipment. At 50 cents per 1,000 lb. of steam, the cost could be $2.90. The power required for the generation of this steam would cost 42 cents, making a total of $3.22 for drying a ton of wet asparagus butts. Dehydration of the wet butts extracts approximately 90 to 91 per cent of water, leaving as dry material 180 to 200 lb. out of each ton of wet butts. The slicing of the wet butts would cost approximately 30 cents per 100 lb. The grinding of the dried butts would cost approximately 20 cents per 100 lb., giving a total cost of 2½ cents per pound based upon a calculation that 200 lb. of dried butts are obtained from each ton of wet butts.

Two bacterial counts of the powdered dehydrated asparagus butts from test 1b gave a count respectively of 500 bacteria per gram and 750 bacteria per gram, indicating that the product is nearly sterile.

The dried butts stored in air-tight containers over a period of six months gave no indications of decomposition or loss in flavor, and no substantial change in the chemical analysis. Dehydrated asparagus butts, therefore, appear to possess definite and desirable constituents of food value.

REFERENCES

(1) Atwater and Bryant, Bul. 28, Office of Exp. Station, U. S. Dept. of Agriculture.
(2) Osborn and Mendel, *Journal of American Medical Association*, 78, 1121-1122, 1922.
(3) Sherman and Smith, "The Vitamins," 2nd edition, page 196-197 (1931).
(4) Crist and Dye, *Journal Biological Chemistry*, 81, 525-532, 1929.
(5) Otto Schroen, U. S. Patent 942, 287 (1909).
(6) Matias Chila, U. S. Patent 1,166,887 (1916).

In The Current of Events

- *More questionnaires—Companies should cooperate*
- *What Congress may do in the way of legislation*
- *Preservers want code to remove unfair practices*
- *AAA acts on potatoes, hogs, corn, prunes and rice*
- *Reciprocal treaties signed with Holland, Honduras*

Those Questionnaires

WHILE flour millers were still struggling to fill in all the blank spaces on their questionnaires, the principal dairy companies last month received from the Federal Trade Commission a set even more voluminous. And investigation sheets covering hogs and cattle were scheduled to go out to packers before the end of the month. The exact number of dairies to receive the questionnaires was not divulged, but it was "less than 30." Only thirteen milling concerns were questioned, giving rise to complaints in the industry that such a limited survey could not give accurate results.

Thorough to the point of nuisance, these FTC investigations are fair and honest, in the opinion of Washington observers. They require lengthy and somewhat burdensome reports from processors, but those close to events in the Capital consider it important that the companies do not unduly resent this and thereby give the impression that they are afraid to have all the facts in the hands of the government.

Extends Milk Investigation

HAVING completed its field investigation of milk and milk products in the Minneapolis-St. Paul milk shed, the Federal Trade Commission soon will send its men into the Boston, St. Louis and New York areas. In New York, the inquiry will relate to the affairs of the large distributing companies with main offices in that metropolis. In addition to the investigational work in these areas, the FTC also will study the cost of distributing milk in several important cities.

Preservers Want Code

APPLICATION has been made to the Federal Trade Commission for one of its fair-trade-practice agreements by the preserving industry. The first major food processing group to apply for one of the Federal Trade Commission's substitutes for NRA codes, the preservers seek, among other things, to prohibit false advertising and set up only two grades for their products—pure and imitation.

WILL TALK

Howard A. Orr, president of National Canners' Association, will tell fellow canners all about the labeling situation at the industry's convention in Chicago this month, placing emphasis on what the canner thinks about grade labels. Other speakers will cover such timely subjects as problems arising under the Social Security Act and economic relations of canners and growers. In addition there will be addresses and discussions on raw products problems, canning technology, markets and merchandising, cost accounting, home economics education and other subjects.

The grade standards the industry wants, and which the Food & Drug Administration already has promulgated, will provide that pure preserves contain 45 lb. of fruit to each 100 lb. of the finished product. Preserves produced by using less than this minimum must be labeled "imitation." This standard was used in the NRA code for the industry.

Berry Calls Another

FOOD manufacturers, like other industrialists, have been in the dark as to the big idea back of the Berry industrial conference held last month. And what with the notable lack of accomplishment at that assembly, they are even more confounded by the purpose of the Council for Industrial Progress meeting called by Major Berry for Jan. 6. In fact, there is little evidence that such a Council really exists. As far as the food industry is concerned, no representative was appointed at the December meeting. There were some 25 food men at the confab, but none with authority to speak for his industry, and a resolution was passed throwing the entire matter back to the trade associations of the various industries.

Bills Congress May Pass

FOOD AND DRUG BILL—It probably will be reported out of the House Commerce Subcommittee early in this session and is expected to go through in much the same shape as the Senate approved it. The only opposition now is that of proprietary medicine interests. Their lobby is expected to be offset by the intensive drive women's organizations have made for legislation. Just about the time this bill will come up for consideration, Ruth Lamb, Food and Drug Administration press agent, will bring a book off the press entitled "American Chamber of Horrors." Copiously illustrated, it will contain all the old Tugwell exhibit plus about as many more pictures.

The next thing for consideration is what, if anything, the administration plans to do about reviving NRA. It is too early yet to predict what shape such legislation will take. However, an administration program on this subject will take care of a lot of bills which will be reintroduced this session. Among them are:

Walsh Bill—This would compel all contractors or bidders on work or supplies financed in whole or part by the government to comply with compulsory labor regulations. It has strong labor backing, but several government agencies are privately opposed to it and are influencing friends on the "hill" to sidetrack it.

Black-Connery 30-Hour-Week Bill—It is termed by most Washington observers "the greatest menace industry will have to face during this session of Congress," because this is election year. An administration NRA program would spike it.

The O'Mahoney bill, which provides

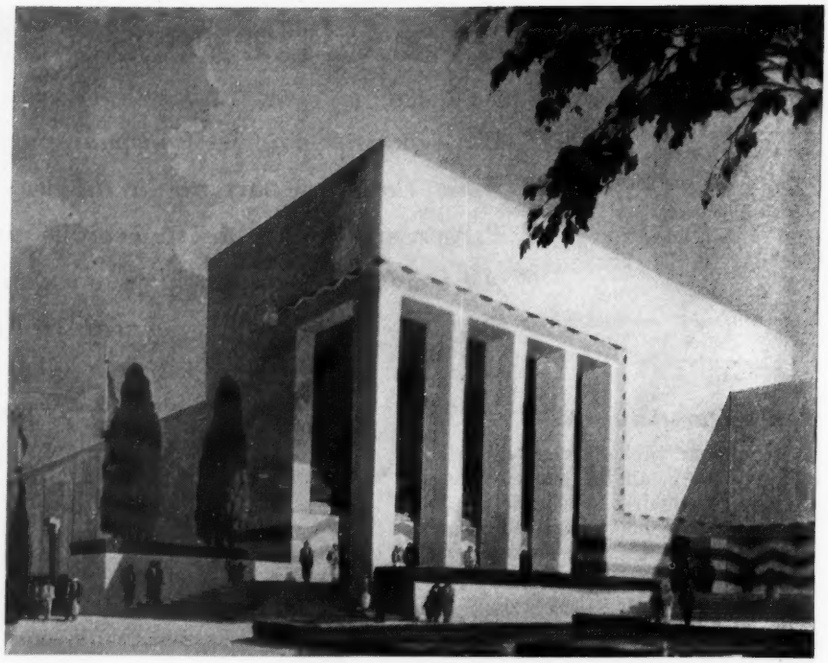
federal licenses for corporations with provisions for revocation if a corporation is unfair to labor, has strong labor backing. But prospects for it are poor with or without an administration NRA program.

Next comes the possible legislation that will result from the Federal Trade Commission milk and agricultural income investigations. A drive for public utility regulation of fluid-milk distribution probably will be made in some form, but is not expected to get anywhere. Additional funds and extension of the agricultural income investigation may be expected.

Pending on the legislative slate are the Patman and Huddleston anti-chain store bills, directed against discrimination between the purchasers. Patman has had a committee building up a record for his bill all summer. If there is time during the session it is expected that at least a gesture will be made by the House against the chain stores. It is doubtful if the Senate will concur.

Two legislative drives will be made by domestic farm organizations during the session. These will probably get nowhere, but they will draw some strong fighting. The American Farm Bureau Federation, the National Grange and dairy interests will make a concerted drive to increase the present tax of ¼ cent per pound on white and 10 cents per pound on yellow oleomargarine by an additional 5 cents, respectively, if domestic oils are used in the manufacture, and 10 cents, if imported oils are used. Opposition from the cottonseed oil belt will be strong.

A drive for excise taxes on imports of dried and frozen eggs and starches will be made. The Pacific Coast cooperatives, the National Poultry Council and farm organizations will revive the fight against egg imports, and the Corn Products Institute and potato growers will fight for the starch tax.



NOT BIG ENOUGH

Competition is getting keen among food manufacturers serving the Southwest. The demand for exhibition space in the food building at the Texas Centennial Exposition is so great that agricultural exhibits have been crowded out. Already 25,000 of the 36,000 sq.ft. available in this $190,000 futuristic structure has been taken. To be held at Dallas, the Exposition opens in June.

With the AAA—

WHILE the Supreme Court toyed with its future, the AAA last month took steps to administer the Potato Control Act and put into effect programs pertaining to hogs, corn, prunes and rice. It was with its tongue in its cheek that the administration on Dec. 2 began to impose the potato law regulations. Never favorable to the measure, AAA looks forward to its early modification by grace of Congress. Secretary Wallace objects to the compulsory features, the stringent criminal penalties on both buyers and sellers of untaxed potatoes and lack of provisions for variation in the market situation. It is, perhaps, significant that the apportionment of sales under the act allows tax-free sales exceeding the average annual sales for the past six years.

Details of the corn-hog program were completed early in December. The plan permits a 30 per cent increase in hog production this year and it restricts the corn acreage to about 95,000,000 acres, an increase of 1,400,000.

The AAA prune plan has been set up to divert sub-standard prunes into by-product channels. Pacific Prune Products Association will purchase the sub-standard fruit, with funds advanced by Reconstruction Finance Corp. By agreement with Secretary Wallace, the association will receive payment equal to the difference between the amount it gets for the prunes and the amount it pays for them.

As to rice, the administration has approved a four-year adjustment program for Southern, California and Hawaiian classes. These follow the 1935 programs.

Grade Labels Favored

THAT grade labeling for canners will be recommended by the review division of what remains of NRA is indicated by the attitude in the division toward findings coming out of recent grade standard investigations. And canned comestibles are not the only foods being studied with respect to the informative method of labeling which has been a goal of the administration since the New Deal was born. Mayonnaise, salad dressing, preserves and macaroni are others. While this work is supposedly being done in the interests of industry, the influence of certain consumer champions is feared.

Package Program Prepared

OUTSTANDING current problems of packaging, packing and shipping will be taken up in the meetings, clinics and round-table discussions to be held in conjunction with the Sixth Packaging Exposition, in New York, March 3-6. The first two days will be devoted to unit packages, with the remaining time given over to packing and shipping. Spotlighted in a special full-morning session will be important problems involved in the selection and use of packaging machinery.

A new series of measurements have been established for the basis of the 1935-36 Irwin D. Wolf Awards. They take the form of the following 20 classes:

The most effective use of (1) a single color; (2) more than one color; (3) typography and lettering; (4) elements of design to create shelf visibility. (5) The most effective redesigned package. The most effective package as to (6) merchandising ingenuity; (7) consumer convenience. (8) The most effective packaging of a combination sales unit. (9) The most effective package employing a secondary use. The most effective (10) use of layout and decorative design; (11) package insert; (12) use of inventive genius in construction; (13) use of two or more materials in one package. (14) The most effective family of packages; (15) gift package; (16) package for a product not previously packaged. The most effective container (17) as to design; (18) from the standpoint of merchandising and construction ingenuity. (19) Most effective counter display pieces for a unit package. (20) Most effective floor display pieces for the unit package.

The closing date for entries is Feb. 17. Forms and information may be had from Irwin D. Wolf Awards Administration, 232 Madison Ave., New York.

More Reciprocal Tariffs

TWO MORE reciprocal trade agreements have been signed, one with the Netherlands, the other with Honduras. As a concession to the United States, the Netherlands will purchase annually quantities of wheat flour and milling wheat equivalent to at least 5 per cent of the amounts of these products annually consumed in that country, provided the price and quality competes with that for the world. Netherland tariff concessions include binding of present duties, or free listing, as the case may be, on rolled oats, oat grits, cereal breakfast foods, lard, oleo oil, apricot kernels, rice, canned asparagus, apples, pears, grapefruit, prunes, raisins and canned fruits. Seasonal reductions in import fees are granted on apples, pears, dried prunes, raisins, grapefruit, and apricot kernels. Netherlands Indian duty exemption is bound on cereal breakfast foods, apples, grapes, various dried fruits, canned salmon, canned fruit, canned asparagus, canned artichokes and other preserved vegetables.

The following table lists duty reductions on foods from the Netherlands:

Commodity	Old Duty	New Duty
Edam & Gouda cheese, lb	7c	5c
Holland herring, lb	1c	¾c
Pearl barley, lb	2c	1c
Broken rice, lb	¾c	5-16c
Split peas, lb	2½c	1¼c
Cabbage, lb	2c	1½c
Sauerkraut	50%	25%
Onions pickled in brine	35%	25%
Prepared chicory, lb	4c	3c
Cocoa and chocolate—		
Unsweetened:		
Cocoa, lb	3c	1½c
Chocolate, lb	3c	1½c
Sweetened:		
Chocolate in bars of 10 lb. or more, lb	4c	2c
In other forms, 10c or more per lb	40%	20%
Cacao butter	25%	12½%

The treaty with Honduras reduces the tariff on United States' exports of cereals, crackers, several meat products, dairy products and canned foods. Ninety-nine per cent of the exports from Honduras enter this country free of duty, but concessions were granted on pineapples, mango and guava pastes and pulps and preserved guavas.

To Improve Cream

IMPROVEMENT in the quality of cream is an important part of the year's program for the dairy industry. Steps to effect this were resolved upon at the annual convention last month of American Association of Creamery Butter Manufacturers, held in Chicago. That a uniform receiving grade for cream be established at the factories for use in checking and buying is one of the resolutions. That sediment testing be continued regularly and that every effort be put forth to facilitate rapid movement of cream to the factory and to protect it in transit are others for cream-quality betterment.

G. T. Guthrie, Aro Creamery Co., St. Louis, heads up the association for the coming year. No successor was chosen for W. F. Jensen, who resigned as executive secretary.

Rules on Shrimp Labels

INVESTIGATIONS have shown that not more than 5 per cent by weight of shrimp should be broken in canning operations. So the Food & Drug Administration has ruled that canned shrimp containing a greater percentage of the broken product must be labeled "Small and broken shrimp," or with the more general designation "Shrimp—Contains broken shrimp." Cans with 5 per cent, or less, of broken seafood may be labeled simply "Shrimp."

Fruit Freight Cut

REDUCED RATES on Mondays, Thursdays, Fridays and Saturdays may be put into effect by railroads hauling Florida citrus fruit to breakfast tables in Baltimore, Philadelphia, New York and New England. By this recent ruling of the Interstate Commerce Commission, rail service furnished at the same rates as competitive truck-boat routes becomes equivalent to service afforded by any one steamship line. Such sun-dial rates will encourage greater consolidation of shipments so that the citrus traffic may be handled in larger units.

In the Interest of Safety

IN A MOVE to reduce accident hazards in the food industry, National Safety Council's food section will conduct this year investigations to determine causes and find remedies. This was decided at a safety meeting in Chicago at which the interests of 1,600 food plants were represented.

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Conventions

JANUARY

13-18—American Fruit & Vegetable Shippers' Association, annual, Palmer House, Chicago. E. S. Briggs, 1425 S. Racine Ave., Chicago, manager.
19-25—National Canners' Association, National Food Brokers' Association, Canning Machinery & Supplies Association and machinery and supplies exhibit, annual, Stevens Hotel, Chicago.
22—National Pickle Packers' Association, annual, Palmer House, Chicago. F. D. Gorsline, 105 W. Adams St., Chicago, secretary.

FEBRUARY

3-5—Associated Bakers of America, Jefferson Hotel, St. Louis. John M. Hartley, 360 N. Michigan Ave., Chicago, secretary.
4-8—Poultry Industries Exposition, Port Authority Bldg., New York. N. Y.
5-7—American Management Association, personnel and office management divisions, Palmer House, Chicago.
10-11—Potomac States Bakers' Association, Lord Baltimore Hotel, Baltimore. Lee L. Robinson, Woodward Bldg., Washington, D. C., secretary.

Many present at this meeting declared that fumigation has been for years a worse "racket" than rat poison selling, until recently when a few reputable concerns entered the field. And it is hoped that some sort of standard for fumigants, such as fire underwriters have set up for electric wiring, may be established.

Dog bites represent one of the biggest hazards of the milk-merchandising industry, it was said.

New McGraw-Hill Chairman

JAMES H. MCGRAW, founder of McGraw-Hill Publishing Co., has resigned as chairman of the board and has been elected honorary chairman, remaining a member of the board. James H. McGraw, Jr., succeeds him as chairman. Malcolm Muir continues as president.

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Concentrates

► INTERSTATE shipments of oranges colored with yellow or orange aniline dyes to simulate fruit of greater maturity and flavor, or of superior variety, will be subject to action under the Food & Drug Act. . . . Chicago's poultry industry is being studied to determine if it should be placed under the federal licensing system.

► DR. EDWARD R. WEIDLEIN, director of Mellon Institute, has been elected president of American Chemical Society. . . . Air Hygiene Foundation of America, Inc., has been formed at Pittsburgh to investigate the technologic and economic aspects of air contamination. . . . Sampling operations on Alaskan canned salmon reveal a higher proportion of unfit fish than has been noted in recent years, this being attributed to the condition of the raw stock.

► CANNERS selling foods to the government must buy coal from producers complying with the Bituminous Coal Conservation Act, according to an interpretation of the law by the Bituminous Coal Commission. . . . There is a potential outlet in South Africa for first-class chocolates and fancy chocolate-covered bars, according to the Cape Town consulate.

► WITH the aid of federal funds, State Experiment Station, Geneva, N. Y., will endeavor to improve the quality of surface-ripened cheeses. . . . Eighty varieties of sugarcane have been collected from islands in the South Pacific by the Department of Agriculture. . . . The floating brewery formerly serving Alaskan coastal towns has been anchored permanently at Ketchikan and will supply that city with beer brewed under the direction of Joe Blazek, formerly with Horluk Brewing Co., Seattle.

Men . . . Jobs . . . and Companies

Industry

• Armour & Co. has exercised its option to buy Hauser Packing Co., Los Angeles, and it has acquired the plant of Kaufman & Co., Inc., Baltimore.

• Booth Fisheries Corp. is making a safety drive at all of its branches and has issued a booklet on accident prevention.

• P. J. Burke Canning Co. is constructing a $75,000 modern pea cannery at Milton, Ore., to be completed by next season.

• California Mushroom Co., Whittier, has increased the production capacity in its southern California plant from 800 lb. to 1,600 lb. per day adding ten new production houses. A central cooling and air-conditioning system has been installed.

• Continental Baking Co. is remodeling its plant at Columbus, Ohio.

• Dorgan-McPhillips Packing Corporation, Columbia, Miss., will step up production from 100,000 to 250,000 cases.

• Green Bay (Wis.) Food Co. will manufacture vinegar and mustard to market along with its pickle and sauerkraut lines.

• Isaly's, Inc., will erect at Columbus, Ohio, a $150,000 building to be completed July 1.

• Iten-Barmettler Biscuit Co. has started building its modern factory at Omaha. Measuring 425 by 247 ft., the plant will be of reinforced concrete and steel construction, with a brick exterior. It is to be a "daylight" bakery and is to have the latest in equipment, including the largest diathermatic plate ovens in the world.

• Knudsen Creamery Co., Los Angeles, has completed plant additions which double the capacity. Fresh milk and cream have been added to its line of products.

• Kraft-Phenix Cheese Corp. has taken over the Clare (Mich.) cheese factory. The company also plans to open at Hope, Ark., a cheese plant with a capacity of 50,000 lb. of whole milk daily.

• Loud & Jackson Dairy, Inc., Jackson, Mich., has purchased the milk division of Arctic Dairy Products Co.

• McNair Ice Cream Co., Jackson, Miss., has completed installation of equipment to handle milk, cream and butter.

• National Biscuit Co., New York, has filed a damage suit against nine Massachusetts companies for alleged infringement of patent rights on an automatic cup pastry making machine.

• Dr. Pepper Bottling Co. will expand its Memphis plant early this year.

• Pepsi-Cola Co. is establishing a bottling plant at Columbus, Ga.

• Planters Oil Mill Co. is conducting at Tunica, Miss., experiments in the crushing of soya beans to demonstrate the value of producing the bean in Mississippi, Louisiana and Arkansas.

• Salerno-Megowen Biscuit Co., Chicago, will increase its manufacturing space by 25 per cent and will install $100,000 of new equipment. The entire plant will be air-conditioned.

• Joseph Schlitz Brewing Co., Milwaukee, has under way a modernization program which will involve an expenditure of approximately $1,000,000 before completion early this year.

HOWARD O. FRYE

He has been elected vice-president and general manager of Walter Baker & Co., Inc., Dorchester, Mass., a subsidiary of General Foods Corp. His vacated position of associate merchandising manager in charge of General Foods' institution sales department is taken by W. E. Haensler.

• Sucrest Corp., subsidiary of American Molasses Co., expects its modern Brooklyn, N. Y., refinery to be completed within the next month.

• Spreckels Sugar Corp. refinery, Yonkers, N. Y., shut down since 1930, is being negotiated for by a large Texas flour milling company, which is said to contemplate a $1,000,000 modernization program involving construction of the largest elevator in the East.

• Sunland Biscuit Co., Los Angeles, has purchased a $100,000 building in which to install a modern biscuit factory.

• Sunshine Dairy Co., Milwaukee, has taken over Country Creamery Co.

• Swift & Co., Chicago, is conducting a safety drive among its 56,000 employees.

Personnel

• George Albers, chairman of the board of Albers Bros. Milling Co., Portland, Ore., which he founded 40 years ago, has turned active management of the company over to Alfred M. Ghormley, president.

• Curtis C. Brown succeeds E. G. Galer as president of New York State Association of Ice Cream Manufacturers. He is with Netherlands Co., Syracuse.

• C. S. Churchill, H. H. McKee & & R. C. Sims are assistant general superintendents of Swift & Co. instead of Wilson & Co., as previously announced in this column.

• Edward H. Cooley has been elected manager of New England Fisheries Association.

• James F. Cyphers has left Runkel Bros., New York, where he was vice-president in charge of manufacturing. A. Milton Mullens has resigned as vice-president in charge of bulk sales.

• Charles Elich has resigned as brewmaster of Premier-Pabst Corp., to become brewmaster and superintendent of Goebel Brewery, Detroit.

• T. Henry Foster, president of John Morrell & Co., Ottumwa, Iowa, becomes a member of the board of directors of National Association of Manufacturers.

• W. R. Hemrich is the new advertising manager of Armour & Co., Chicago.

• C. D. Jordan recently resigned as vice-president of Wesson Oil & Snowdrift Co. because of ill health.

• H. F. Krimendahl heads up Ohio State Canners' Association. He is from Salina.

• Milton Lewis, of New York, has been appointed general manager of the reorganized Supreme Pastries, Inc., Clifton, N. J.

• F. D. Mathers, manager-director of Broder Canning Co., New Westminster, B. C., presides over the newly formed Canned Food Association of British Columbia.

• A. C. Michener succeeds T. G. McElroy as advertising manager of John Morrell & Co., Ottumwa, Iowa. Mr. McElroy retires after 34 years of service.

• H. C. Raven, Portland, Ore., has been elected president of National Creamery Buttermakers' Association, succeeding W. B. Combs, University of Minnesota professor.

• Kenneth N. Rider, of the Trafalgar (Ind.) company bearing his name, will serve as president of Indiana Canners' Association for the coming year.

• Pat Roddy, Knoxville, Tenn., now is head of Tennessee Bottlers' Association. He succeeds E. W. Carroll, Memphis.

• Caleb C. Scutt, Red Creek, has been made president of the Association of New York State Canners.

• E. G. Six succeeds H. S. Culver as president and general manager of Plankinton Packing Co., Milwaukee. Mr. Culver retired Jan. 1 on a pension.

• Ray F. Sopher, for more than a decade in charge of production for B. A. Eckhart Milling Co., Chicago, has gone with Acme-Evans Co., Indianapolis, as general superintendent. He replaces J. E. Nichols, resigned, and is succeeded at Eckhart by Stephen Locka.

• C. B. Spencer, formerly with Hunt Bros., Salem, Ore., recently took over the old Oregon Canning Co. plant at Lebanon.

HOMER F. ZIEGLER

Joining Anheuser-Busch, Inc., St. Louis, when a boy, he worked his way up until, on Dec. 3, he was made a vice-president of the company. During the last few years he directed the development of the yeast, malt syrup and corn products divisions of the company.

• R. E. Stewart, Stewart Ice Cream Co., Port Arthur, Tex., succeeds J. M. Seymore as president of Southern Association of Ice Cream Manufacturers.

• R. W. Wehrwein now is managing the Eastern division of Bowey's, Inc., with headquarters at the Brooklyn, N. Y., plant. He formerly was vice-president of Siren Mills Corp.

Deaths

• Charles A. Anderson, 70, operator of Normandie Corp., Atlanta, recently.

• A. W. Bellack, 76, founder of Columbus (Wis.) Foods Corp., and organizer of Columbus Canning Co. in 1900, recently.

• Samuel J. Brenet, 67, president of Fort Pitt Brewing Co., Pittsburgh, Dec. 19.

• Samuel H. Curran, 59, vice-president of Royal Baking Powder Co., Dec. 17.

• Richard H. Dietz, 72, a prominent manufacturing baker at Holyoke, Mass., for the past half-century and past president of Tri-State Bakers' Association, Dec. 7.

• M. T. Dwyer, operator of a Clinton, Mass., bottling plant bearing his name, Dec. 2.

• Roy A. Lusk, 64, president of Lusk Mustard Co., New York, recently.

• Dr. Lafayette B. Mendel, 63, nutrition scientist at Yale University and recipient of a recent award by Associated Grocery Manufacturers of America for notable work on foods, Dec. 9.

• George J. Renner, Jr., 79, founder and chairman of Renner Co., Youngstown, Ohio, recently.

• John Wagner, 80, co-founder of Wagner Bakery Co., Detroit, which was sold to Continental Baking Co., in 1924. Dec. 8.

• P. Silas Walter, 58, vice-president of International Salt Co., Scranton, Pa., and former president of National Salt Producers' Association, Nov. 22.

Associated Industries

• American Can Co., New York, has appointed George E. Gaddis special representative in the general sales department. The company also has advanced Dr. C. O. Ball to assistant to the director of research.

• Cherry-Burrell Corp., New York, has made an enlightening motion picture study of ice cream packaging operations with the Vogt Instant Freezer.

• National Can Co., Inc., New York, announces election of two new assistant vice-presidents; Robert S. Solinsky and S. Carle Cooling.

• F. A. Prahl has left Continental Can Co., where he was in charge of production, to go with Owens-Illinois Glass Co. It has been reported that Owens-Illinois would enter the tin-container field, but the company denies this.

• A. L. Sodergreen, formerly with Pease Laboratories, New York, and more recently a consultant, is now with Manton-Gaulin Manufacturing Co., in a technical capacity. He is an expert on homogenizers.

• Republic Steel Corp., has made C. A. Cherry district sales manager in the Buffalo territory.

• John M. Young, 63, assistant to the president of American Can Co., died Dec. 1. He worked on food problems for 45 years, developing means of vacuum-packing coffee, perfecting the collapsible can used by salmon packers and contributing to the successful canning of Hawaiian pineapple.

Flaked Coffee

(Continued from page 14)

slowly through a horizontal plane in coordination with the overstructure. Each segment in turn rises to insert its seven-can charge into the open end compartments and form air-tight seals with the compartment openings preparatory to controlled vacuumizing and subsequent gassing of the compartment and its contents. Operations of this machine are so coordinated that while one segment is being emptied and reloaded, a loaded segment is being raised to insert cans into and make contact with the compartment openings preliminary to rotation into the zone in which the valves in compartment heads are opened, vacuum applied, and gas subsequently turned on. In the meantime the third segment has passed beyond the gassing zone, had its seal broken, and is being lowered to level for emptying and reloading.

Vacuums obtained by this machine are registered by a Dubrovin vacuum gage calibrated to ½ mm. but indicating pressures of ¼ mm.

In the clinching, vacuumizing-gassing, and sealing units all motors are interconnected. If the vacuum machine gets an overload, the supply of gas falls below 1½-lb. pressure, or a jam occurs in the clincher or sealer an automatic cutout shuts off other machines including the filler. Shutting down of the filler stops the rolls which in turn shuts down the tempering machine.

When the supply of lids gets to a certain minimum in the clincher magazine an automatic gong signal sounds for replenishment of supply by the attendant feeding in empty cans.

SO well has the layout engineering been done on this plant that all these units, exclusive of the ground coffee supply bin, have been installed and operate satisfactorily on a production basis in a room 40 ft. long, 18 ft. wide, 15 ft. high. One man operates the entire plant exclusive of feeding empty cans into the line and cartoning the filled ones.

On the basic engineering principles employed in the Grand Union Co. plant installations of greater production capacity and giving the same controllable performance are in the process of development.

Colors for Foods

(Continued from page 24)

I as precipitation of the color occurs. However, these four colors are not recommended for use in beverages, consequently any of the methods described may be used by bottlers. Fast Green and Brilliant Blue are not subject to this reaction.

MILK as a rule contains reducing bacteria which during the ripening process in ice cream making may increase in number considerably. Therefore, color should be added at the last possible moment just before the mix is added to the freezers or immediately afterwards; particularly with the dark colored goods, such as chocolate ice cream. Milk or ice cream mix colored with brown color made from a mixture of certified dyes may, within a period of a few hours, turn red, yellow, green or blue, according to which component of the color mixture fades first. Ice cream colored with the cream yellows, which consist of Tartrazine mixed either with Sunset Yellow or Orange I, occasionally are found to become progressively darker on storage. This appears to be caused by the action on Tartrazine of the ice cream containers In the presence of nearly all metals, particularly copper, Tartrazine becomes dark and, in time, almost black. The remedy is the same as previously mentioned—add the color after the mix is in the freezer and keep the cans in good shape.

The fading of colors in various candies is a different problem. It is impossible to color pure dry sugar with aniline dyes because this would require that the dye be introduced into the sugar crystal. There must be some water or other solvent in the candy to make the dyes show up as color. It seems probable that the loss of color in certain candies, such as crystallized creams or sugared candies, is caused by partial drying and the loss of the water which previously had made the color visible. As the water decreased in the outer layers of the drying candy and as the sugar crystallized the color had appeared to fade. Real fading, which is destruction of dye in the watery portion of the candy, can, of course, occur at the same time as desiccation. This point can be determined by dissolving the same weights of old and new candy in water and comparing the intensity of the color solutions. It has been stated that color solutions made with glycerine and water produce brighter tints in candy than the usual water solutions. If this is true the explanation might be that the glycerine leaves the candy surface more slowly than the water. However, it must be admitted that the per cent of glycerine introduced in this way is quite small.

A number of samples of corn syrup have been observed to exert a decolorizing action on Amaranth. If one milligram of Amaranth is dissolved in 2 or 3 oz. of corn syrup and the syrup warmed to 200 deg. F., the color will frequently fade in fifteen to 45 minutes. The cause of the fading may be due to impurities in the corn syrup, but it should be remembered that corn syrups contain sugars whose molecules contain the active ketonic and aldehyde groups which are active in both reduction and oxidation processes.

CITY waters, containing excessive amounts of chlorine added for sterilization, are blamed for the fading of certain colors; but it is thought that if this is a cause of fading, the occurrence is rare.

Amaranth is found occasionally to fade in peppermint sticks or in candy imitation of fruits. The usual red shade becomes light brown or even yellow, sometimes quite rapidly and again only after a considerable length of time has elapsed. The reasons for this type of fading are probably varied, but it is considered that the fault probably lies in the candy formula or in the manufacturing processes rather than in the Amaranth, because Amaranth is always found to act quite normally in other uses.

Fruit juices often offer difficulties when one tries to obtain the proper color. The usual colors used may fade or become a dirty brown. Sunset Yellow mixtures or Tartrazine with Ponceau 3R and Orange I all appear to be subject to this type of fading. It is claimed that the trouble may be due to oxidizing enzymes present in the juice, but it must be considered that fruit juices are quite acid in most cases and unless they are handled and processed in glass enameled vessels they are likely to pick up considerable quantities of copper or tin. Contact of the juice with tin must be avoided if it is to be colored successfully irrespective of the possible presence of the oxidizing enzymes.